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THE GEOGRAPHICAL SOCIETY  
OF BALTIMORE

VEGETATION OF THE BAHAMA ISLANDS

BY

WILLIAM C. COKER, PH. D.

SPECIAL PUBLICATION FROM  
THE BAHAMA ISLANDS  
BY PERMISSION OF  
THE GEOGRAPHICAL SOCIETY OF BALTIMORE  
1905

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# THE BAHAMA ISLANDS

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OF BALTIMORE

THE  
BAHAMA ISLANDS

EDITED BY  
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THE JOHNS HOPKINS PRESS

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New York  
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LONDON: MACMILLAN & CO., LTD.  
1905  
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## VEGETATION OF THE BAHAMA ISLANDS



# VEGETATION OF THE BAHAMA ISLANDS

BY

WILLIAM C. COKER, PH. D.,

*Associate Professor of Botany in the University of North Carolina.*

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## INTRODUCTION.

With the exception of New Providence, the numerous islands of the Bahama group lie outside the usual routes of tropical travel, and access to them can be had ordinarily only through the use of small schooners. The comparative insignificance of the Bahamas in their trade relations has intensified this isolation and resulted in their remaining in large measure, as *terra incognita* to the rest of the world. It is a strange commentary on the mutations of time, that on that very island where Columbus first set foot and praised his God for so fair a landing, there has been placed a lighthouse with but the single purpose of warning the mariner from its lonely shores.

In the hope of adding somewhat to our rather meager knowledge of these Islands, and of bringing into more accessible form the scattered observations of others, the Geographical Society of Baltimore, in the summer of 1903, organized an Expedition for the purpose of their exploration. I, with my two assistants, Mr. C. A. Shore and Mr. F. M. Hanes, was given charge of the botanical side, and this report is the result of observations and collections made during the voyage. As an apology for many deficiencies, I would call attention to the limited time at our disposal, and to the extreme difficulty of drying and preserving plants on the decks of a schooner generally exposed to a stiff breeze. Except in the town of Nassau, where we secured a working room for several days, the plants had to be brought to the boat and there pressed, labelled, and stowed away. On account of the salt air and frequent rains constant attention was necessary to prevent the decay of our specimens. Wherever possible notes were made on the spot, and it is from these that most of my descriptions are taken.

A large part of our time was consumed in sailing from port to port, or rather from point to point, as there are few protected harbors in the Islands;

and at a number of landings we had time for but a few hours on shore and had to avail ourselves of every moment.

On our return, the collections were distributed among a number of specialists, who kindly undertook their determination and who are responsible for the nomenclature. All of the ferns and flowering plants, with the exception of the grasses, sedges and palms, were determined by Dr. N. L. Britton; the grasses, by Dr. H. F. Hitchcock; the palms, by Dr. O. F. Cook; the myxomycetes by Dr. W. G. Farlow; the algae, by Dr. M. A. Howe; the fungi, by Dr. Geo. F. Atkinson; the lichens, by Mr. W. W. Calkins; the liverworts, by Dr. A. W. Evans; and the mosses, by Mrs. N. L. Britton. To each of these I am under many obligations not only for undertaking the work, but for the kindness that they have in every case shown in furnishing information and in answering my inquiries. To Dr. N. L. Britton, Director of the New York Botanical Garden, my thanks are particularly due for the assistance he so generously offered during my stay of six weeks in the Bronx Park Museum. To Mr. C. A. Shore, who aided me in collecting, and to Mr. F. M. Hanes, who took the photographs, I wish to express my gratitude for faithful assistance under all circumstances.

#### SKETCH OF BOTANICAL EXPLORATIONS IN BAHAMAS.

Since Mark Catesby's visit in 1725, these Islands have been frequently explored by botanists; unfortunately, however, without system. Most of their scientific exploration has yielded little fruit, as there are but a few publications of any extent on a flora that is both abundant and attractive. Most collectors have been satisfied with making herbaria without troubling themselves with written observations. Some few have merely identified without collecting. The Bahama plants that have been preserved are now, however, quite numerous, and when thoroughly worked up, they will no doubt be found to include the major part of the flora of the Islands.

The earliest collector of whom we have any information was Mark Catesby. After visiting Virginia, the Carolinas, Georgia and Florida, he went to New Providence in 1725. From there he made visits to Eleuthera, Andros, Abaco and other islands. He remained in the Bahamas until 1726 and collected plants from all the points he visited. His collections are now at Oxford and in the British Museum. On his return to England, Catesby published two large volumes of explorations which contained many illustrations.<sup>1</sup> The first

<sup>1</sup>The Natural History of Carolina, Florida and The Bahama Islands, etc. London, 1731-43.

volume appeared in 1731, the second in 1743. Linnæus based some of his species on Catesby's drawings.

No more botanical work seems to have been attempted in the Bahamas until Emperor Joseph II of Austria sent Franz Joseph Maerter, who was Professor of Natural History in Vienna, with several assistants in 1783 to collect plants and animals in America. Landing in Philadelphia, the party travelled through the eastern United States to Florida. From there Maerter, with two companions, Boos and Schöpf, went to New Providence in March, 1784. Maerter remained but two weeks, but Schöpf collected there for three months and Boos until September 9 of the same year. From New Providence these two men made excursions to several of the Out-islands. Of the collections made by this party, some specimens are in the K. K. Hofmuseum in Vienna and some in Brussels. A few years later Andre Michaux, the well-known French explorer and naturalist, went from the southern United States to the Bahama Islands in 1789. There he collected about 863 trees and shrubs and a number of seeds, most of which were carried alive to France and there planted.

A long period of over forty years now elapsed before another botanist explored the Islands. In 1830 a man named Swainson visited the Bahamas and remained there until 1842. Little is known regarding Swainson, not even his first name. He did some collecting on New Providence, but most of his plants are labeled from the Out-islands. His herbarium was taken to Kew, where it was worked over by Grisebach, who incorporated a large number of the species in his "Flora of the British West Indies."<sup>2</sup>

Sixteen years later Justus Adalrik Hjalmarson, who had been living for a number of years in St. Thomas and Porto Rico, visited Grand Turk Island in May, 1858, where he collected for fourteen days. His plants were included in Grisebach's flora.<sup>3</sup> They are now divided between the Kew herbarium, Grisebach's herbarium in Göttingen, and Krug and Urban's herbarium in Berlin. The following year William Cooper, an American, collected in New Providence. His plants (about 150 sheets) are now in the herbarium of the New York Botanical Garden. At about this time Henrik Johannes Krebs, who had also spent most of his life on St. Thomas, paid a short visit to New Providence and collected a few plants which are now in the Botanical Museum in Copenhagen.

<sup>2</sup> *Flora of the British West Indian Islands.* London, 1861.

No more botanical research was attempted in the Islands until Dr. Anna H. Searing, of Rochester, New York, collected in the Bahamas in 1885. Her plants are included in the list of Gardner, Brace and Dolley.<sup>3</sup> In June of the next year, Dr. F. H. Herrick visited Abaco with a party from the Johns Hopkins University, where he made collections of plants that are now divided between Yale University and Adelbert College, Ohio.<sup>4</sup> During this same year (1886) John Gardner, an Englishman, who was occupying the position of scientific adviser to the Board of Agriculture of the Bahamas, identified a number of Bahama plants and added to Brace's list.<sup>5</sup> He did not, however, make a collection.

For the next two years Baron von H. F. A. Eggers,<sup>6</sup> was busy collecting plants in the Bahamas. He first visited America as an officer in the Danish army. Later he became interested in natural history, and after retiring from the army in 1885, he remained for a number of years in the West Indies, where he made explorations and collected a large number of plants. In July, 1887, he visited Grand Turk and collected some interesting plants. Later he was sent by the British Association to investigate the Bahama flora. Accordingly, in February and March, 1888, he visited New Providence, Acklin, Fortune and Long Islands, where he collected and made notes on the general vegetation. His collections from the Bahamas include about 314 species (in addition to 15 numbers from Grand Turk). They have now been widely scattered, some being at Kew and most of the others with Krug and Urban in Berlin. A number of Eggers's plants have recently been worked up by Urban,<sup>7</sup> who found many new species among them.

During this same year Dr. Charles Sumner Dolley collected in the Bahama Islands and added to the list of Brace and Gardner.<sup>8</sup> His collections are in the herbarium of the University of Pennsylvania. Mr. L. J. Brace, a resident of Nassau, has for years been collecting and preserving Bahama plants. Some time ago he started a list of the flora which was added to and published by Gardner and Dolley.<sup>9</sup> Brace's numbers are now at Kew. During the next year Dr. J. I. Northrop and his wife, Alice Northrop, visited the Bahamas,

<sup>3</sup> Provisional List of the Plants of the Bahama Islands. Proc. Acad. Nat. Sci. Phil., 1889, pp. 349-407.

<sup>4</sup> Notes on the Flora of Abaco and Adjoining Islands. Johns Hopkins Univ. Cir., Vol. VI, 1886, pp. 46-47; also Proc. Acad. Nat. Sci. Phil., 1889, pp. 349-407.

<sup>5</sup> Flora of the Bahamas. Nature, 1888, pp. 565-566; also Die Bahama-Inseln. Globus, Braunschweig, Vol. LXII, 1892, pp. 209-214.

<sup>6</sup> Symbolae Antillanae seu Fundamenta Florae Indae Occidentalis. Berlin.

where they remained for over six months, collecting animals and plants on New Providence and Andros. Dr. Northrop died soon after his return to the United States, but his wife, with the aid of a number of specialists, published a list of the plants which they had collected. This publication is a valuable contribution to our knowledge of the Bahama flora.<sup>1</sup>

During the winter of 1890-91, Dr. A. S. Hitchcock, with a party of naturalists, made a tropical tour including the islands of Jamaica, Grand Cayman and the following of the Bahama group: New Providence, Eleuthera, Cat, Watlings, Crooked, Fortune and Inagua Islands. The plants that he collected on this expedition were published in the IV and IX Annual Reports of the Missouri Botanical Garden. This report includes 380 plants from the Bahama Islands, among which were several new species.<sup>2</sup>

In 1895, Mrs. G. A. Hall, at present a resident of St. Augustine, Florida, visited New Providence and Green Turtle Cay, collecting algae. She sent a number of species to Agardh, who reported on them in several of his papers.

The activity in botanical exploration in the Bahamas which marked the closing years of the last century has continued over into this. Dr. John W. Harshberger, at present instructor of botany in the University of Pennsylvania, while traveling in the West Indies, stopped for a few hours during July, 1901, at Matthewtown, Great Inagua, and collected some plants.<sup>3</sup>

During the winter of the next year, Mrs. Amelia C. Anthony spent some time on New Providence and collected a number of ferns, a list of which she published later.<sup>4</sup> A. H. Curtiss, a resident of Florida, visited the island of New Providence in 1903 and made a collection of plants which are now in the herbarium of the New York Botanical Garden. During June and July of this same year, the Bahama Expedition of the Geographical Society of Baltimore was making its cruise of the Bahamas and collected material for this present volume.

Since the return of the Bahama Expedition, Drs. N. L. Britton, C. F. Millspaugh and M. A. Howe have collected extensively in the Bahama Islands.

<sup>1</sup> *Flora of New Providence and Andros, with an Enumeration of the Plants Collected by John I. Northrop and Alice R. Northrop, in 1890.* Mem. Tor. Bot. Club, Vol. XII, 1902, pp. 1-98, pls. 1-19.

<sup>2</sup> *Cryptogams Collected in the Bahamas, Jamaica and Grand Cayman.* Rept. Bot. Garden, Vol. IX, 1898, pp. 111-20; also *Plants of the Bahamas, Jamaica and Grand Cayman.* Fourth An. Rept. Bot. Garden, 1893, pp. 47-179.

<sup>3</sup> *Notes on the Strand Flora of Great Inagua, Haiti and Jamaica.* Torreya, Vol. III, 1903, pp. 67-70.

<sup>4</sup> *Fern Hunting in Nassau.* Fern Bull., Vol. X, 1902, pp. 65-68.

Dr. Britton accompanied by Mrs. Britton visited New Providence in April of 1904, and again during August and September of the same year. His plants are in the herbarium of the New York Botanical Garden, of which he is Director. Drs. Millspaugh and Howe visited New Providence, Joulters, Gun, North Cat and South Cat Cays, North Bimini and South Bimini. The plants collected by Dr. Millspaugh during this expedition number about 394 sheets and are now divided between the Field Columbian Museum of Chicago and the herbarium of the New York Botanical Garden. Dr. Howe devoted his attention to the *Algæ* and *Fungi* and brought back a large number of these forms, which were also deposited in the New York Botanical Garden.<sup>11</sup>

#### COMPOSITION AND RELATIONSHIPS OF THE BAHAMA FLORA.

The number of native and naturalized flowering plants and ferns so far collected and identified from the Bahama Islands is about nine hundred and fifty. This includes collections made by Dr. Britton and Dr. Millspaugh since the return of the Bahama Expedition and not yet published, together with the collection of Mr. A. H. Curtiss, made in the spring of 1903. This number undoubtedly comprises by far the greater part of the plants of the Islands, but there is yet much work to be done before we can know even approximately the extent and variety of their indigenous flora.

The ferns and fern-allies are represented by twenty-five species. Of these, all are ferns except *Psilotum nudum* (L.) Griseb., which is known only from Andros. *Lycopodium*, *Selaginella* and *Equisetum* are not found. The maiden-hair fern (*Adiantum capillus-veneris* L.) and *Asplenium dentatum* L. have been found only on New Providence. There are but five native species of *Gymnosperms*, the *Cycads* being represented by three *Zamias* and the *Conifers* by *Pinus bahamensis* Griseb. and *Juniperus barbadensis* L. All are confined to the northwestern group. Grasses and sedges are represented by a large number of species, most of which are widely distributed in other countries. Of these groups only *Eragrostis bahamensis* Hitch. is endemic.

So far as we are able to determine at present, there are seven indigenous palms in the Islands. The different species have been so variously named, however, that only by examination and comparison of collections can their identity be definitely settled. Hitchcock and Gardner, Brace and Dolley list *Sabal um-*

<sup>11</sup> Notes on Bahama *Algæ*. Bull. Tor. Bot. Club, Vol. XXXI, 1904, pp. 93-100; also Collections of Marine *Algæ* from Florida and the Bahamas. Jour. N. Y. Bot. Garden, Vol. V, 1904, pp. 16-166.

*braculifera* (Jacq.) Mart., from Cat and Fortune Islands respectively, but there is no doubt that this is the same plant as the one we collected from Cat Island and New Providence, and identified by Dr. Cook in this report as *Inodes palmetto* (Walt.) Cook. Hitchcock's *Thrinax argentea* (Jacq.) Lodd., collected on Eleuthera and Cat Islands, is undoubtedly the *Coccothrinax jucunda* Sarg. given in this report, while his *Thrinax parviflora* Sw. is probably our *Thrinax bahamensis* Cook. The cabbage-palm, given in Gardner, Brace and Dolley as *Euterpe oleracea*, is probably Cook's *Cyclospathe northropi*, collected by Northrop and by us. In addition to the four palms listed in this report, Northrop collected one other on Andros, a new species named by Cook, *Paurotis androsana*, and Millspaugh in the spring of this year collected two other species from North Cat Cay and South Bimini, identified as *Thrinax floridana* Sarg. and *Pseudophoenix sargentii* Wendl., respectively. It may prove, however, that when comparison is made these two may be found to be identical with others previously collected.

Among the other *Monocotyledons*, the *Bromeliaceæ*, *Smilacaceæ*, and *Orchidaceæ* are most abundant. Northrop lists six species of *Tillandsia* to which we add *Tillandsia aloifolia* Hook., from Abaco, not before collected in the Bahamas. *Tillandsia usneoides* L., the "gray moss" of our southern States, has been reported only in the list of Gardner, Brace and Dolley. Of *Smilax* there are three or four species at least. Of these, *Smilax beyrichii* Kunth of this report has probably been collected by others under a different name. Of the four species of *Amaryllidaceæ*, *Agave rigida* Mill., the great century plant or bamboo, is by far the most conspicuous. It is singular that it has not been reported from New Providence. The orchids are represented by about thirty species, but they are much in need of further study, as their names have probably been considerably confused by various collectors. Northrop's new species, *Vanilla articulata*, from the Bahamas and Cuba, may be identical with one of the south Florida forms. Of the lily family, but one species is known on the Islands. This is *Aletris bracteata* Northrop, found by Northrop on Andros, and endemic there.

Of all that great group, the *Amentales*, comprising the oaks, hickorys, chestnuts, alders, hornbeams, etc., that make up so large a part of our continental forests, there is but one species, *Myrica cerifera* L., to be found in the Bahama Islands, and it may have been introduced from the United States by the agency of man. It has so far been noticed only on New Providence and Andros. There are several indigenous species of figs, all of which are large

trees. Three are listed in this report and five others are given by Northrop, Hitchcock and Urban. It is very doubtful, however, if there are as many as eight species represented in these collections, and I think it unlikely that there are more than this number of indigenous figs in all the islands of the group.

The *Loranthaceæ* are credited with seven or eight species, but here also the nomenclature has probably been confused. This family is not nearly so abundant in the Bahamas as in some of our other tropical islands, as Jamaica and Cuba. The *Polygonaceæ*, represented in temperate countries only by herbaceous species, comprise a number of Bahama trees of the genus *Coccolobis*. Some of them are among the most common plants of the Islands. No water lilies (*Nymphaeaceæ*) had been found until we collected *Castalia ampla* (DC.) Green, on Cat Island, and it remains the only indigenous species of that family so far reported. The great group, *Cruciferæ*, so abundant in the United States, is represented only by the widely distributed littoral plant *Cakile æqualis* L' Her., and the introduced weed, *Lepidium virginicum* L. Of the rose family, *Chrysobalanus* and *Prunus* are the only Bahama genera. The first is represented by two species, the pink-fruited and black-fruited cocoa plums; the second by but one species, *Prunus sphaerocarpa* Sw., known only from New Providence. The *Mimosaceæ*, rarely found in the United States, furnished some of the largest and most useful trees of the Islands, such as the horseflesh and will tamarind. The *Cassiaceæ* and *Papilionaceæ* are also well represented. The proportion of woody species to herbaceous ones is greater in these families than it is in the United States. Of the *Zygophyllaceæ*, *Guaiacum* (*Lignum vitæ*) and two species of *Tribulus* are all that have been collected. *Tribulus cistoides* L. is reported only by Hitchcock. We did not see it at any point and its evident rarity is remarkable when we consider its wide distribution and abundance on other tropical shores. The *Linaceæ* comprise several species of *Erythroxylon* and two species of *Linum*. Of the latter *Linum curtissii* Small is a new species found by Dr. Britton on New Providence and soon to be published. The *Euphorbiaceæ* is one of the most extensive families of the Islands. Most of its representatives are woody species and many of them are trees. The peculiar shrub, *Bonamia cubana* A. Rich., of our collection, had not before been found out of Cuba, and the large tree, *Pera humeliaefolia* Griseb., also collected by us, has not heretofore been published from the Bahamas. *Securinego acidothamnus* (Griseb.) Muell. Arg., collected by us on Andros, had not previously been found north of St. Thomas. The *Celastraceæ*,

*Rhamnaceæ* and *Sapindaceæ* are fairly well represented. In the vine family (*Vitaceæ*), there are a good many species of *Cissus*, but of the true grapes there is only *Vitis rotundifolia* Michx. of the southern United States. It seems to occur only on New Providence. The Virginia creeper, one of our common plants, has been found on New Providence, Andros and Eleuthera. Of the mallows, a new species of *Malvaviscus* from Watlings Island is given in this report. Of the *Cactaceæ*, about six species have so far been reported, but it is probable that a more thorough exploration of the southern islands will add several to this list. It is remarkable that so far no cactus has been found on the island of New Providence.

The *Myrtaceæ* are chiefly represented by the genus *Eugenia*. The guava (*Psidium guava* Radd.), although abundantly planted, is scarcely, if at all, naturalized in the Bahamas. This is rather peculiar, as it has made itself quite at home in a number of the West Indies, where, as in Jamaica, it forms extensive thickets. The cultivated *Pimenta vulgaris* W. A., indigenous to Jamaica, seems also not to have established itself. The failure of these two plants to gain a footing without cultivation emphasizes the restricted conditions of soil and climate furnished by the islands of the group. The *Umbelliferae*, so abundant in temperate regions, can boast but two indigenous species here. In addition to these, one or two weeds have been introduced from other countries. Of the great heath family, there is but a single Bahama species, *Clethra tinifolia* Sw., and it has been reported only by Gardner, Brace and Dolley. It is also found in Jamaica, Trinidad, Mexico and South America. The two species of the olive family given in this report are the only two found on the Islands. The *Boraginaceæ*, *Verbenaceæ*, *Labiateæ*, *Solanaceæ* and *Scrophulariaceæ* are all fairly well represented, but the largest families on the Islands are the *Rubiaceæ* and *Compositæ*. The *Rubiaceæ* here consist principally of woody species, and the portion of woody species in the *Compositæ* is also greater than in temperate regions. The interesting family *Lentibulariaceæ* contains three Bahama species, two of *Utricularia*, and *Pinguicula pumila* Michx., all insectivorous plants. Families represented in the Bahamas but not included in our list are the following: *Cycadaceæ*, *Potamogetonaceæ*, *Juncaginaceæ*, *Hydrocharitaceæ*, *Liliaceæ*, *Aristolochiaceæ*, *Ranunculaceæ*, *Batidæ*, *Papaveraceæ*, *Polygonaceæ*, *Lythraceæ*, *Onagraceæ*, *Primulaceæ*, *Plumbaginaceæ*, *Ebenaceæ*, *Cuscuteæ*, *Hydrophyllaceæ*, *Plantaginales*. All except two of these include but one Bahama species.

The relative importance of families, not particularly mentioned above,

may be seen approximately by referring to the list of our collections. The large proportion of genera in comparison with the number of species has already been called attention to by Mrs. Northrop. The number of families represented by only one genus is also much larger than in more northern countries.

With the exception of the *Algæ*, the lower plants have been given little attention by collectors. The *Myxomycetes* listed in this report are the first ever collected from the Islands. Most of them were found during a search of an hour on Mangrove Cay, Andros, and there is no doubt that many others might be brought to light by a more careful examination. Of the nineteen *Fungi* here reported, four were previously collected by Northrop and Hitchcock. Northrop speaks of the scarcity both of *Fungi* and *Lichens*, but, according to our observations, *Fungi* were not at all uncommon and *Lichens* were exceedingly abundant. The latter encrust the bark of most shrubs and trees, even in the mangrove growth along the coast. Of the forty *Lichens* collected by us, one (*Blodgettia confervoides* Harv.) is marine and its exact position is not definitely established. Of the *Algæ*, seventeen of the forty-five collected had been previously reported by Northrop, or by Gardner, Brace and Dolley. Agardh has also described a number of Bahama *Algæ* in various papers, and some have been included in other works. Dr. M. A. Howe, of the New York Botanical Garden, has visited the Bahamas since our return and made extensive collections of *Algæ* on New Providence and several of the smaller northern islands. The eight liverworts of our list are all new to the Islands, none having been found before. Mrs. Northrop includes six mosses in her report, and these, with our two additional ones, make up the meager list of known Bahama forms.

#### DISTRIBUTION OF THE BAHAMA FLORA.

Both Hitchcock and Northrop have discussed the relationship of the Bahama flora to that of other countries, and each has given tables showing the distribution of the plants collected by them in a number of the West Indies and on the American continent. I have arranged the following table of 795 plants, comprising, in addition to my own, those reported by Hitchcock, Northrop, Grisebach, Urban, and Herrick, together with additional ones in the yet unpublished lists of Curtiss, Britton and Millspaugh.

TABLE SHOWING DISTRIBUTION OF SEVEN HUNDRED AND NINETY-FIVE FLOWERING PLANTS  
AND FERNS, INDIGENOUS TO THE BAHAMA ISLANDS.

Common to Bahama Islands and Cuba .....	536
Common to Bahama Islands, Mexico or Central America .....	311
Common to Bahama Islands and South America .....	282
Common to Bahama Islands and Southern Florida .....	322
Common to Bahama Islands and Southern United States .....	170
Peculiar to Bahama Islands .....	56

It will be seen from this table that there are about the same number of plants common to the Bahamas and Cuba as are common to the Bahamas and the southern United States including tropical Florida, the numbers being 536 as compared to 492. It is, therefore, evident that a study of the Bahama flora does not indicate any ancient land connections either between Cuba on the one side or Florida on the other. Neither does it furnish any proof against the supposition of such land connections. The majority of the plants common to the Bahamas and to the southern United States, extend also into other tropical countries and it seems probable that these more widely distributed species have invaded both the Bahamas and Florida from the south. Of the 492 plants common to the Bahamas and the United States, there are 40 that are found only in these two regions. Their names and distribution are as follows:

*Pinus bahamensis* Griseb. New Providence, Andros, Abaco, Great Bahama, and Berry Islands; Florida to North Carolina and Mississippi.

*Halophila engelmannii* Aschers. Andros, South Bimini (Howe); Southern Florida.

*Eragrostis elliotti* S. Wats. New Providence; Southern United States.

*Distichlis maritima* Raf. (*D. spicata* (L.) Green.) New Providence, Watlings and Inagua Islands; Southern United States.

*Inodes palmetto* (Walt.) Cook. (*Sabal Palmetto* (Watt.) R. & S.) New Providence, Eleuthera, Watlings and Cat Islands; Southern United States.

*Coccothrinax jucunda* Sarg. New Providence, Green Cay, Eleuthera, and Watlings Islands; Florida.

*Thrinax floridana* Sargent. North Cat Cay (Millspaugh); Southern Florida.

*Pseudophænix sargentii* Wendl. South Bimini (Millspaugh); Southern Florida.

*Aletis bracteata* Northrop. Andros; Florida.

*Smilax beyrichii* Kunth. New Providence; Southern United States.

*Smilax auriculata* Walt. New Providence and Andros; Southern United States.

*Myrica cerifera* L. New Providence and Andros; Southern United States.

*Ficus aurea* Nutt. New Providence; Florida.

*Salicornia bigelovii* Torr. Andros; Southern United States.

*Dondia linearis* (Ell.) Millsp. New Providence; Southern Florida.

*Alternanthera maritima* St. Hil. Andros; Southern Florida.

*Cassia aspera* Michx. Eleuthera; Southern United States.

*Linum curtissii* Small. New Providence; Florida.

*Xanthoxylon cibrosum* Spr. Andros; Southern Florida.

*Polygala boykinii* Nutt. Andros; Southern United States.

*Sacharia bahamensis* Urban. New Providence and Andros; Florida.

*Rhus blodgettii* Kearney. North Cat Cay (Millspaugh); Key West, Florida.

*Vitis rotundifolia* Michx. New Providence and Andros; Southern United States.

*Eugenia longipes* Berg. New Providence, Andros and Eleuthera; Southern Florida.

*Jacquinia keyensis* Mez. New Providence, Andros, Abaco, Eleuthera, Rum Cay, Long, Cat and Crooked Islands; Southern Florida.

*Mimusops floridana* Engelm. Andros; Southern Florida.

*Cynoctonum sessiliifolia* (T. & G.) Britton. Andros; Southern United States.

*Sabbatia campanulata* (L.) Torr. New Providence, Andros and Cat Islands; Southern United States.

*Asclepias paupercula* Michx. Abaco; Southern United States.

*Ipomoea sagittata* Cav. (*I. speciosa* Walt.) New Providence; Southern United States.

*Scutellaria longifolia* Small. Eleuthera; Southern Florida. (This species has not yet been published.)

*Solanum blodgettii* Chapman. North Cat Cay (Millspaugh); Key West, Florida.

*Gerardia maritima* Raf. New Providence, Andros, Eleuthera and Abaco; Southern United States.

*Gerardia purpurea* L. Andros; Southern United States.

*Pinguicula pumila* Michx. Andros; Southern United States.

*Eupatorium capillifolium* (Lam.) Small. New Providence; Southern United States.

*Erigeron quercifolium* Lam. New Providence and Andros; Southern United States.

*Baccharis angustifolia* Michx. New Providence; Southern United States.

*Iva imbricata* Walt. Andros; Southern United States.

*Willughbya heterophylla* Small. New Providence, Andros and Abaco; South Florida.

As to the origin of these 40 species, it is difficult to say which have originated in the United States and which in the Bahamas. *Eragrostis elliotti* S. Wats., *Thrinax floridana* Sarg., *Pseudophænix sargentii* Wendl., *Myrica cerifera* L., *Polygala boykinii* Nutt., *Vitis rotundifolia* Michx., *Rhus blodgettii* Kearney, *Pinguicula pumila* Michx. and *Baccharis angustifolia* Michx. have in all probability migrated from the United States to the Bahamas. As has already been remarked, *Myrica* may have been introduced by man.

If now we divide the Bahama Islands into two groups, the first or northeastern group, comprising Andros, New Providence, Abaco, Great Bahama, the Berry Islands and their adjoining cays, and the second or southwestern group comprising Eleuthera and all the islands south of it, it will be seen from the above list that all except eight of the plants confined to the United States and the Bahamas are found only on the northwestern group. This is what we might expect from the proximity of this group to the Continent.

There are at present, so far as I have been able to ascertain, fifty-six endemic species reported from the Bahama Islands. These, with their distribution, are as follows:

*Eragrostis bahamensis* Hitch. Inagua.

*Thrinax bahamensis* Cook. New Providence, Andros, Green Cay, Eleuthera, Cat and Watlings Islands. (Authorities differ as to this. According to Dr. Britton, this is identical with *Thrinax microcarpa* Sarg. from Florida.)

*Paurotis androsana* Cook. Andros.

*Cyclospathe northropi* Cook. Andros and Eleuthera.

*Hymenocallis arenicola* Northrop. New Providence and Andros.

*Epidendrum altissimum* Bateman. Cat Island and Eleuthera.

*Epidendrum gracile* Lindl. (Given by Grisebach as from the Bahamas, but he adds no precise locality.)

*Epidendrum rufum* Lindl. (Given by Grisebach as from the Bahamas, but he adds no precise locality.)

*Epidendrum bahamense* Griseb. (Given by Grisebach as from the Bahamas, but he adds no precise locality.)

*Phoradendron northropiae* Urban. Andros.

*Torrubia cokeri* Britton. Eleuthera.

*Acacia choriophylla* Benth. New Providence and Andros.

*Pithecellobium mucronatum* Britton. Long Island.

*Mimosa bahamensis* Benth. Fortune Island and Inagua.

*Pithecellobium bahamense* Northrop. New Providence and Andros.

*Cassia caribaea* Northrop. Andros.

*Cesalpinia ovalifolia* Urban. New Providence and Andros.

*Cesalpinia lucida* Urban. New Providence and Eleuthera.

*Linum bahamense* Northrop. New Providence and Andros.

*Erythroxylon reticulatum* Northrop. Andros.

*Buxus bahamensis* Baker. New Providence, Andros and Watlings Islands.

*Phyllanthus bahamensis* Urban. Andros.

*Euphorbia cayensis* Millsp. Rum and Joulters Cays.

*Salvia bahamensis* Britton. New Providence.

*Croton hjalmarsonii* Griseb. Fortune and Inagua Islands.

*Crassopetalum coriaceum* Northrop. Andros.

*Thouinia discolor* Griseb. New Providence, Andros, Eleuthera, Cat, Fortune and Inagua Islands.

*Reynosia northropiana* Urban. Andros.

*Sphaeralcea abutiloides* Endl. New Providence.

*Malvaviscus cokeri* Britton. Watlings Island.

*Pavonia bahamensis* Hitch. Fortune Island.

*Helicteres spiralis* Northrop. Andros, New Providence and Eleuthera Islands.

*Waltheria bahamensis* Britton. New Providence.

*Xylosma ilicifolia* Northrop. New Providence, Andros and Eleuthera Islands.

*Passiflora pectinata* Griseb. New Providence, Andros and Turks Islands.

*Bourreria thymifolia* Griseb. Rum Cay and Turks Islands.

*Terminalia spinosa* Northrop. Andros.

*Casearia bahamensis* Urban. Andros.

*Bumelia loranthifolia* (Pierre) Britton. New Providence, Andros and Eleuthera.

*Metastelma eggersii* Schtr. Fortune Island.

*Metastelma barbatum* Northrop. New Providence and Andros Islands.

*Plumiera bahamensis* Urban. Acklin Island.

*Cordia bahamensis* Urban. Fortune and New Providence Islands.

*Heliotropium nanum* Northrop. Andros.

*Tecoma bahamensis* Northrop. New Providence and Andros Islands.

*Jacaranda bahamensis* R. Br. Andros.

*Jacaranda carulea* Griseb. New Providence and Cat Islands.  
*Catesbeia paniculata* Northrop. Andros and Green Cay.  
*Scolosanthus bahamensis* Britton. New Providence.  
*Ernodea cokeri* Britton. Abaco.  
*Stenostomum myrtifolium* Griseb. (Given in Grisebach as from the Bahamas, but he adds no precise locality.)  
*Myrstiphyllum ligustifolium* Northrop. Andros.  
*Scolosanthus bahamensis* Britton. New Providence.  
*Anguria keithii* Northrop. Andros.  
*Eupatorium bahamense* Northrop. Andros.  
*Vernonia bahamensis* Griseb. New Providence, Andros, Cat and Inagua Islands.

Among the endemic species mentioned by Mrs. Northrop are included *Croton eleuteria* Sw., which was found by Hitchcock on Grand Cayman, and *Vanilla articulata* Northrop, which she gives in her table of distribution as also from Cuba. To the endemic species listed above we may probably add *Zamia tenuis* Willd., as it is not certainly known outside of the Bahamas.

The fifty-eight flowering plants that, so far as I have been able to determine, have not before been reported from the Bahamas, are given with their distribution in the table on the page following.

In discussing the relationships of the Bahama flora, we must not forget that the limestone soil and exposure to salt, drought and wind, to which its flora is subjected, would preclude the occurrence in those Islands of many groups of plants that are particularly partial to certain sorts of soil or to fresh water, shade and low temperature. When this is kept in mind, we are not surprised at the absence of such families as *Araliaceæ* and *Piperaceæ*, although both are quite common in the larger islands of the West Indies, and the *Araliaceæ* in the United States also. *Peperomia magnoliæfolia* (Jacq.) C. DC., for example, is found in the Bermudas, in south Florida and in several of the West Indies, but neither it nor any other member of its family is found in the Bahamas. The absence of *Selaginella*, *Lycopodium* and *Equisetum* is also in all probability due to uncongenial conditions and not to the lack of means of distribution. On the other hand, the absence of *Sapindus saponaria* L. is difficult to account for, as it is abundant in Florida, Jamaica, and Central and South America, and in these countries seems able to endure sandy soil and maritime conditions. The singular rarity of *Tribulus* in the Bahamas has already been remarked upon.

The distribution of plants among the different islands of the group is a matter of considerable interest. As is to be expected, the littoral plants are practically identical in all the islands, and the majority of other forms also show no particular anomalies of distribution. Attention has already been

TABLE SHOWING DISTRIBUTION OF FLOWERING PLANTS COLLECTED DURING THE  
BAHAMA EXPEDITION AND NOT PREVIOUSLY REPORTED  
FROM THE BAHAMA ISLANDS.

SPECIES.	GEOGRAPHIC DISTRIBUTION.																										
	Abaco.	Andros.	Cat Island.	Cuba.	Eleuthera.	Europe.	Green Cay.	Guadeloupe.	Haiti.	Jamaica.	Joulters Cay.	Long Island.	Mexico.	North America.	Porto Rico.	Rum Cay.	South America.	South Bimini.	Southern California.	Southern Florida.	Southern United States.	St. Thomas.	Texas.	Virgin Islands.	Watlings Island.	West Indies.	West Indies (French).
<i>Halophilla engelmannii</i> Aschers <sup>a</sup> .																											
<i>Andropogon virginicus</i> L.	*	*	*																								
<i>Andropogon tener</i> Kunth.	*	*	*																								
<i>Paspalum vaginatum</i> Sw.																											
<i>Panicum elephantipes</i> Mees.																											
<i>Setaria macrostachya</i> H. B. K.	*	*	*																								
<i>Setaria filiformis</i> Sw.																											
<i>Cyperus vahlii</i> Strud.																											
<i>Schizanthus nigricans</i> L.																											
<i>Tillandsia aloifolia</i> Hook.	*	*	*																								
<i>Smilax beprichii</i> Kunth.																											
<i>Ficus sapotifolia</i> Kunth. & Benche.																											
<i>Chenopodium spathulatum</i> Sieb. <sup>b</sup>																											
<i>Alternanthera maritima</i> St. Hil. <sup>c</sup>	*	*	*																								
<i>Amaranthus tristis</i> L.																											
<i>Petiveria alliacea</i> L.																											
<i>Torrubia obtusata</i> (Jacq.) Britton.																											
<i>Torrubia cokeri</i> Britton.																											
<i>Castalia ampla</i> (DC.) Green.																											
<i>Capparis jamaicensis</i> Jacq.																											
<i>Pithecellobium mucronatum</i> Britton <sup>d</sup> .																											
<i>Cassalpinia vescicaria</i> L.																											
<i>Cassia lineata</i> Sw.																											
<i>Cassia aspera</i> Michx.																											
<i>Simaruba glauca</i> Kunth.																											
<i>Croton discolor</i> Willd.																											
<i>Phyllanthus virens</i> Muell. Arg.																											
<i>Euphorbia havanensis</i> Willd.																											
<i>Euphorbia brasiliensis</i> L.																											
<i>Euphorbia cayensis</i> Millsp. <sup>e</sup>																											
<i>Savia bahamensis</i> Britton <sup>d</sup> .																											
<i>Bonamia cubana</i> A. Rich. <sup>f</sup>																											
<i>Pera humilifolia</i> Griseb. <sup>g</sup>																											
<i>Securinera acidothamnus</i> (Griseb.) Muell. Arg.																											
<i>Gyminda grisebachii</i> Sarg.																											
<i>Malvaviscus cokeri</i> Britton.																											
<i>Passiflora rubra</i> L.																											
<i>Opuntia triacantha</i> DC. <sup>h</sup>																											
<i>Eugenia confusa</i> DC.																											
<i>Eugenia punctata</i> Vahl.																											
<i>Zuelania lactoides</i> Rich.																											
<i>Feniculium feniculum</i> (L.) Karst <sup>i</sup>																											
<i>Bunelia loranthifolia</i> (Pierre) Britton.	*	*	*																								
<i>Lucuma multiflora</i> A. DC.																											
<i>Adelia segregata</i> (Jacq.) Small.	*	*	*																								
<i>Ximenesia americana</i> L.																											
<i>Metastelma brachystephanum</i> Griseb. (?)																											
<i>Ipomoea sagittata</i> Cav.																											
<i>Cordia cylindrostachya</i> R. & P.																											
<i>Lippia stachadifolia</i> Kunth.																											
<i>Citharexylum quadrangular</i> Jacq.																											
<i>Salvia micrantha</i> Vahl.																											
<i>Scutellaria longifolia</i> Small.																											
<i>Solanum haranense</i> Jacq.																											
<i>Datura arborea</i> L.																											
<i>Galium hispidulum</i> Michx.																											
<i>Ernodea cokeri</i> Britton <sup>d</sup>	*	*	*																								
<i>Scotosanthus bahamensis</i> Britton	*	*	*																								
<i>Baccharis angustifolia</i> Michx.																											
<i>Leptilon canadense</i> (L.) Britton <sup>k</sup>																											

<sup>a</sup> Found by Howe on South Bimini subsequent to the return of the Bahama Expedition. <sup>b</sup> A weed in most warm countries. <sup>c</sup> Tropical America. <sup>d</sup> Endemic. <sup>e</sup> Endemic on Joulters Cay. <sup>f</sup> Confined to Cuba and Bahamas. <sup>g</sup> Described by DC. from West Indies. <sup>h</sup> A weed from Europe. <sup>i</sup> Tropics of both hemispheres. <sup>j</sup> Tropical America. <sup>k</sup> A widely distributed weed in Europe, North America, South America, etc.

called to the rarity on the southeastern group, of plants common to the Bahamas and the southern United States. Mrs. Northrop found on the damp, open savannas of Andros a considerable number of plants that she mentions as confined to that environment. That their absence on most of the other islands is due to the lack of similar conditions is shown by our finding several of them in the Killarney pine barrens of New Providence, where the conditions are nearly the same as on the savannas of Andros. As the smaller islands rarely offer any environment approaching that of these savannas, we would not expect to find upon them plants that are partial to such situations.

The pines and cedars are confined to the northeastern group (New Providence, Andros, Abaco, Great Bahama, and the Berry Islands), while the *Cactaceae* are mostly southern in their distribution. So far, no member of the latter family has been reported from either New Providence, Abaco or Great Bahama, and, according to Northrop, there are none on the northern half of Andros. *Cereus swartzii* Griseb., *Opuntia spinosissima* Mill., and *Opuntia tuna* Mill. occur on the southern half of Andros. The first is found also on some of the southern islands, and the last on Eleuthera, Rum Cay and Watlings Island. *Opuntia triacantha* DC., found by us on Rum Cay, is said by Gardner, Brace and Dolley to occur also on Watlings and Concepcion Islands. The same authors also give *Melocactus communis* DC. as indigenous to Turks Islands and wild on Acklin Island, while a species of *Echinocactus* is listed by them from Inagua and southern islands. The tall, columnar *Pilocereus lanuginosa* Rumpf. is not uncommon on Eleuthera, Long and Watlings Islands and probably extends to the southernmost members of the group. Other species of cactus will probably be found on Inagua and Grand Turk Islands. They have been so little explored that their flora is practically unknown.

The poison-wood, which is so common on New Providence, Andros and Abaco, is much rarer on the eastern and southern islands. We did not find it on the northern part of Eleuthera and it was not at all common on Cat Island, Rum Cay, or Watlings Island. *Duranta repens* L. is very abundant on the western islands, but outside of these it has been reported only once, from Eleuthera, by Hitchcock. We did not find it on any of the eastern group. *Byrsinima lucida* (Sw.) DC. is also common on the western and rare on the eastern islands. We found a few specimens on Cat and Watlings Islands. *Vanilla articulata* Northrop, found on Andros by Northrop, was collected by us on New Providence and Watlings Island. It is also said to occur on

Long Island. *Zamia tenuis* Willd. is confined to New Providence and Andros, and *Prunus sphaerocarpa* Sw. is known only from New Providence. There are, of course, a large number of species that have so far been collected from only one spot, but most of these will no doubt later be found to be more widely distributed. Until each island has been pretty thoroughly explored, it will scarcely be worth while to go into any detailed discussion of local distribution. Our data are at present not sufficient to warrant any definite conclusions.

**INDIGENOUS TREES AND SHRUBS USEFUL FOR THEIR WOOD OR LEAVES.<sup>12</sup>**

**INODES PALMETTO** (Walt.) Cook (Thatch Palm).

Plate XXXVII, Fig. 1.

This is the same as the palmetto of our southern United States. Its leaves are used for thatching and sometimes for baskets. It has been reported from New Providence, Eleuthera, Cat and Watlings Islands.

**COCCOTHRINAX JUCUNDA** Sarg. (Silver-thatch Palm).

A smaller palm than the preceding. The silvery leaves, which are much used for making hats and baskets, are collected green and dried in ovens. This palm is common along the shores of New Providence, Green Cay, Eleuthera and Watlings Island. It also occurs in Florida.

**THRINAX BAHAMENSIS** Cook (Goat Palm, Silver Palm).

Plate XXXVIII, Fig. 2.

This is about the same size and appearance as the silver-thatch palm, but the two may be readily distinguished when in bloom by the honey fragrance of the former plant and the fetid odor of the latter. Leaves of the goat palm are used for the same purposes as those of the preceding. It is endemic to the Bahamas and has so far been found on New Providence, Andros, Green Cay, Eleuthera, Cat and Watlings Islands.

**CÆSALPINIA VESICARIA** L. (Braziletto).

A small tree with dark heart wood that produces a valuable red or yellow dye. We found it on Long Island and it is said to grow on the western end of New Providence. It is also a native of Cuba, Jamaica and Haiti. We cannot find that it is now exported from the Bahamas.

<sup>12</sup> The words "Jessup Coll." following a species indicate that its wood may be found in the Jessup Collection of woods at the American Museum of Natural History, New York City.

*HEMATOXYLON CAMPECHIANUM* L. (Logwood).

## Plate XXXIX, Fig. 1.

A low, spreading tree with a deeply furrowed trunk. The wood furnishes the valuable blue dye haematoxylon. Considerable quantities of it are shipped from Nassau to New York. We met with it on New Providence, Eleuthera and Long Island. Mr. R. S. Sweeting, of Nassau, told me that most logwood for export is obtained from Andros, Exuma and Cat Islands. Logwood is a native of Central and South America and was probably introduced into the Bahamas, where it has now become thoroughly naturalized.

*LYSILOMA PAUCIFOLIA* (DC.) Hitch. (Horseflesh).

This probably reaches a larger size than any other tree in the Bahamas. On Mangrove Cay, Andros, we found it growing to a height of 45 feet, with a diameter of 18 inches. In the deeper forests of Andros, it grows much larger than this, and timbers two feet square are sometimes obtained from it. The wood is dark, heavy and capable of a high polish. It is valued for cabinet-making and interior decoration. It is shipped in considerable quantities from Nassau to Liverpool. The horseflesh occurs on New Providence, Andros, Eleuthera and Fortune Islands, and is also a native of Cuba.

*LYSILOMA LATISILIQUA* (L.) Benth. (Wild Tamarind).

The wild tamarind approaches but does not reach the size of the horseflesh. It is sometimes 40 feet high on New Providence, but attains its greatest size on Andros. The wood is heavy and hard, and of a reddish-brown color. It is in demand for furniture-making and shipbuilding. The wild tamarind is found on New Providence, Andros, Long, Cat, Fortune and Inagua Islands, and in south Florida and Cuba. It was previously exported from Nassau to Liverpool.

*SWIETENIA MAHOGANI* L. (Mahogany or Madeira).

A large tree, reaching its greatest size on Andros. It is rather common in the coppice around Nassau, but is there not often over 15 feet in height. Several fairly large specimens may be seen just where the road dips over the Blue Hills. The wood is very hard and heavy, and is much used in furniture and cabinet-making. The madeira is found on New Providence Andros, Crooked, Fortune and Inagua Islands. It is also widely distributed in the West Indies, Central and South America. The wood is shipped from Nassau to Liverpool. (Jessup Coll.)

**GUAIACUM SANCTUM L. (Lignum Vitæ).**

## Plate XXXVI, Fig. 1.

A medium-sized tree with spreading top. The wood is heavy, hard and very difficult to split, and is used in the manufacture of pulleys, hubs, mallets, ten-pin balls, etc. The resinous gum is a stimulant and alterative and is used in the compound decoction of sarsaparilla. The lignum vitæ occurs on New Providence, Long, Fortune, Crooked, Acklin and Watlings Islands, and in south Florida, Cuba, Porto Rico and San Domingo. It is not now exported from the Bahamas. (Jessup Coll.)

**PINUS BAHAMENSIS Griseb. (Pine).**

## Plate XXXV, Fig. 2.

A tall, rather slender tree considerably resembling *Pinus taeda* L. and now known to be identical with *P. elliottii* Engelm. from Florida. Specimens 55 feet in height and 2 feet in diameter at base were seen on New Providence. The wood decays rapidly and is not considered of much value. During our Civil War turpentine and resin were obtained in considerable quantities from the Bahama pine forests, but the industry is no longer active. The pine covers large areas of New Providence, Andros, Abaco, and probably occurs on Great Bahama.

**JUNIPERUS BARBADENSIS L. (Cedar).**

A small tree much resembling *Juniperus virginiana* L. The wood is particularly good for pencil-making, but the supply is now so limited that none is exported from the Bahamas. This is the cedar that was so highly valued for shipbuilding in the early days of exploration. It occurs on the western end of New Providence, on Andros and Abaco, and in the Bermudas, Jamaica, San Domingo and Antigua. According to Sargent, the south Florida cedar is this species, and not *Juniperus virginiana* L., as usually described.

**GYMNANTHES LUCIDA Sw. (Crabwood).**

A small tree, rarely over 20 feet high in the Bahamas. Walking-sticks of superior quality are made from the shoots. It occurs on Andros, Abaco, Eleuthera and Watlings Islands, and in south Florida and many of the West Indies. (Jessup Coll.)

**FAGARA FLAVA (Vahl) Kr. & Urb. (Yellow-wood).**

A small tree with hard, brittle wood that is used in making furniture and for the handles of tools. The plant is found on Andros, Abaco and Long

Islands, and in south Florida, Porto Rico and San Domingo. Species of *Fagara* are used for making walking-sticks. (Jessup Coll.)

**RHIZOPHORA MANGLE L. (Mangrove).**

Plate XLI, Fig. 2, and Plate LXXXIV, Fig. 1.

This remarkable plant is usually a shrub or small tree in the Bahamas, but on Watlings Island we found a grove that was 35 feet high. In Jamaica it sometimes reaches 70 feet. The wood is heavy and strong and, according to Sargent, is used for fuel and wharf-piles, on account of its strength and immunity from attacks of the teredo. Richard Ligon says in "A true and exact History of the Island of Barbados," 1657: "The Mangrove is a tree of such note, as she must not be forgotten; for, though she be not of the tall and lusty sort of trees, yet, she is of great extent; for there drops from her limbs a kind of Gum, which hangs together one drop after another, till it touch the ground, and then takes root, and makes an addition to the tree. So that if all these may be said to be one and the same tree, we may say that a Mangrove tree may very well hide a troop of Horse. The bark of this tree being well ordered will make very strong thred whereof they make Hamocks, and divers other things they wear; and I have heard that the linnen they wear is made of this bark, as also their chaires and stooles." The mangrove occurs in shallow salt water on all the Bahama Islands, and is widely distributed in the tropics of both hemispheres. (Jessup Coll.)

**JACQUINIA KEYENSIS Mez. (Joe-bush).**

A low, stout shrub or tree with small, thick leaves. Though very brittle, the wood is heavy and hard, and takes a good polish. A decoction of the leaves and bark is used by the negroes for washing the head.

**HIPPOMANE MANCINELLA L. (Manchineel).**

This is probably the most poisonous of all trees, and its baneful properties attracted the attention of many of the early writers. Though highly poisonous, the injurious effects of the manchineel, like those of the upas, have been greatly exaggerated by imaginative explorers. The milky sap no doubt causes great inflammation in most cases, but I handled it on several occasions with no worse results than a small, temporary blister. The manchineel tree is about the height and shape of an apple tree, and its fruit superficially resembles the crab-apple. It was often mistaken for an edible fruit by explorers, who suffered much evil in consequence. The wood when dried loses

its irritating qualities, and is highly valued for furniture-making. Catesby, in his "Natural History of Carolina," says that the wood is "very heavy and durable, beautifully shaded with dark and light streaks, for which it is in great Esteem for Tables and Cabinets, and other curious works in Joynery." Hans Sloane, in "The Nat. History of Jamaica," Vol. II, speaks of the manchineel as follows: "Goats feed on the fruit when fallen from the Trees, very greedily and in great Plenty, and yet neither their Flesh, nor which is more wonderful, their Milk is in the least poysonous, but eaten indifferently as other milk." He also notes that its wood is much "coveted by all People, not only for its being able to endure the Polish, but for its Durability, and likewise for its delicate and pleasant Colours, which are dark." Gifford Hughes, in "The Nat. History of Barbados," London, 1750, makes the following observations: "I shall conclude the Description of this Tree with a remarkable Observation, generally found to be true; which is, that wherever a Manchineel-tree grows, there is found a White-wood or a Fig-tree, near it; the Juice of either of the latter being an infallible antidote against the Poison of the former." Occurs on Andros, Watlings and Inagua Islands, and in south Florida, the West Indies, Mexico, Central and South America. (Jessup Coll.)

**SIDEROXYLON MASTICODENDRON** Jacq. (Mastic).

A tree reaching 70 feet high in some countries, but rarely over 40 feet in the Bahamas. The wood is hard and close-grained, and is valued in Florida for boat-building, as it is not injured by the teredo. It is found on New Providence, Andros and Eleuthera, and in south Florida and the West Indies. (Jessup Coll.)

**DIPHOLIS SALICIFOLIA** A. DC. (Wild Cassada, or Bustic).

A graceful tree, often 40 feet high in Florida, but rarely reaching that size in the Bahamas. The wood is heavy, strong, and takes a fine polish. It occurs on New Providence, Andros and Eleuthera, and in Cuba, Jamaica, and in other parts of the West Indies. (Jessup Coll.)

**METOPIUM METOPIUM** (L.) Small (Poison-wood).

A good-sized tree of the same family as our poison ivy, which it resembles in the irritating effect of its juice. The gum is used in medicine as a purgative and emetic. The wood is heavy and hard, but not strong. In some countries it is used, but it does not seem to be much valued in the Bahamas.

Of the poison-wood, Richard Ligon in "A True and exact History of the Island of Barbados, 1657" says: "The poysoned tree, though I cannot commend for her vertues, yet for her beauties I can. . . . Yet, of this timber we make all, or the most part, of the Pots we cure our Sugars in; for, being sawed, and the boards dried in the Sun, the poysone vapours out." (Jessup Coll.)

#### INDIGENOUS MEDICINAL PLANTS.

##### *ICHTHYOMETHIA PISCIPULA* (L.) Hitch. (Dogwood).

A small tree with peculiar, winged pods constricted into joints. The narcotic, sedative root and bark are exported from Nassau for medicinal purposes. Parts of the tree are used by the natives to stupefy fish. The dogwood occurs on Andros, Abaco, Eleuthera and Cat Islands, and in south Florida, the West Indies, Central and South America. (Jessup Coll.)

##### *PICRAMNIA PENTANDRA* Sw. (Snake-root or Bitter-wood).

A tree 20 feet high in damp places, but dwarfed and procumbent on barren plains. The root, which is used medicinally as a tonic and febrifuge, is exported from Nassau. It is found on New Providence and Eleuthera, and in Cuba, Jamaica, Antigua and Guadeloupe.

##### *CANELLA WINTERANA* (L.) Gaertn. (Wild Cinnamon or Bahama White-wood Bark).

This shrub or small tree furnishes the well-known canella bark or cortex canelli albæ, which is used as an aromatic stimulant and tonic. It has a pleasant, cinnamon-like odor and a bitter taste. Shipments of this bark are made from Nassau to New York, but it is not so much used as formerly. Canella is found on New Providence, Andros and Rum Cay; also in the West Indies and Venezuela. (Jessup Coll.)

##### *CROTON ELUTERIA* (L.) Sw. (Cascarilla or Sweet-wood Bark).

A shrub or small tree, the bark of which is used as an aromatic tonic. It is obtained principally from Eleuthera, and is shipped to New York from Nassau. It occurs on New Providence and Eleuthera, and in Jamaica and Grand Cayman.

##### *SIMARUBA GLAUCA* Kunth.

A large and beautiful tree, not before known to occur in the Bahamas. Sargent says that this is one of the handsomest of tropical trees, having brilliant and ample foliage, and bright-colored fruit. The wood is not useful.

being light and soft, but from the bark is obtained the medicinal drug, quassia. This tree has not been found in the Bahamas except where we collected it at the junction of Soldiers road and the Blue Hills road, New Providence. It occurs in Florida, Cuba, Jamaica, Nicaragua and Brazil. (Jessup Coll.)

**BURSERA SIMARUBA (L.) Sarg. (Gum-elemi).**

A good-sized tree with very soft and spongy wood. From it is obtained the "gum-elemi" of commerce, used in medicine and for varnish. Branches of this tree when cut off and stuck in the ground will take root and grow in the most barren soil. We saw a row of them, thus planted, flourishing on the sand dunes at Governors Harbor, Eleuthera. It is found on New Providence, Andros, Abaco, Eleuthera, Long, Cat and Watlings Islands, in south Florida, and most of tropical America. (Jessup Coll.)

In addition to the above-mentioned medicinal plants, there are a great many others that are used by the negroes for various complaints. Some of the more commonly used are the following: *Ipomea pes-caprae* Sw. (Bay hop), *Tetrazygia bicolor* (Mill.) Cogn. (Wild Guava), *Phyllanthus epiphyllanthus* L. (Hardhead), *Bourreria havanensis* (L.) Miers (Strong-back), *Cordia bahamensis* Urban (Granny-bush), *Turnera ulmifolia* L. (Buttercup), *Bryophyllum pinnatum* (Lam.) S. Kurz (Live-forever), *Pluchea odorata* (L.) Cass. (Sour-bush).

**INDIGENOUS FRUITS.**

The indigenous flora of the Bahamas has contributed no fruits that have proved worthy of cultivation. The best of them are hardly equal to our persimmon, and most of those given below are included only because they are considered edible by the natives.

**CHRYSTOPHYLLUM OLIVIFORME** Lam. (Damson Plum, Wild Star-apple, Saffron).

A tree 20 to 25 feet high, of the same genus as the cultivated star-apple (*Chrysophyllum cainito* L.). Wood hard, heavy, valued for charcoal-making. We did not see the fruits and know nothing of its quality except that it is said to be edible. New Providence, Andros and many of the West Indies. (Jessup Coll.)

**TETRAZYGIA BICOLOR** (Mill.) Cogn. (Wild Guava, Naked Wood).

A small tree or shrub. The wood is said to have been used for gin rollers when cotton was an important product of the Islands. The fruit is considered edible. New Providence, Andros, Abaco and Long Islands; also in Cuba.

**REYNOSIA SEPTENTRIONALIS** Urban (Darling Plum, Dorlin Plum).

A small tree or shrub with hard and heavy wood. The fruit is about the size of a plum, blue-black in color, and of a pleasant taste when fully ripe. The first account of this plant was by Catesby, who found it on New Providence, and figured it under the name of "Bullet-bush." It is plentiful on New Providence and most of the other islands, and is also found in southern Florida, Cuba and the Virgin Islands. (Jessup Coll.)

**CHYSOBALANUS ICACO** L., and **CHYSOBALANUS FELLOCARPUS** Meyer  
(Cocoa Plum, Pigeon Plum).

Plate XLIII, Fig. 1.

There are two forms of the cocoa plum, the one with light pink, the other with black fruit. Until recently these were both included under *C. icaco* L., but the black-fruited form is now known as *C. fellocarpus* Meyer. Both forms are abundant along the shores of most of the islands, and they often grow together. The wood is heavy and strong, but is little used. The plant is usually of shrubby growth, but a specimen of the black-fruited variety 25 feet high was seen on Watlings Island. The fruit is the size of a large plum and makes a very good preserve. It may also be eaten raw, but is astringent unless perfectly ripe. It was a favorite fruit with the Carib Indians. The seeds are also edible. They are very oily, and Sargent says that strung on sticks they are used as candles by the natives. The astringent root and bark are of medicinal value. The cocoa plum occurs in southern Florida and is widely distributed in tropical countries. (Jessup Coll.)

**COCCOLOBIS UVIFERA** (L.) Jacq. (Sea-grape).

Plate XLII, Fig. 2.

A scrubby tree of contorted growth found along sandy beaches on all of the Islands. The fruit is borne in long grape-like clusters, and, though astringent, is edible when quite ripe. The wood is hard, takes a good polish, and is sometimes used in cabinet-making. Found also in southern Florida and in most of tropical America. (Jessup Coll.)

**HYPELATE TRIFOLIATA** Sw. (Red-wood, Ebony).

A small tree generally, but reaching a height of 40 feet on Andros. This is not the true Ebony and the wood is not used, but the fruit is said by Sargent to possess a sweet and rather agreeable flavor. It occurs on New Providence, Andros and Long Island, and is also found in southern Florida, Cuba and Jamaica. (Jessup Coll.)

**BYRSONIMA LUCIDA** Rich. (Sweet Margaret).

Usually a low shrub, but reaching 20 feet on Andros. Its rosy flowers, changing to purple as they develop, make this a very attractive plant. The greenish fruit has a pleasantly acid flavor. The plant is common on New Providence, Andros and Abaco, and a few specimens were seen on Cat and Watlings Islands. It also occurs in southern Florida, as well as in Cuba and some of the other West Indian Islands.

**MALPIGHIA POLYTRICHA** Juss. (Touch-me-not).

A shrub with stinging hairs on the leaves, whence the name. The pulpy fruit is about the size of a large cherry. Found on New Providence, Andros, Eleuthera and Cat Islands, and on Haiti.

**BUNCHOSIA GLANDULOSA** (Cov.) Rich. (West Indian Cherry).

A good-sized shrub with pretty, yellow flowers, and fruit the size of a plum. Occurs on New Providence, Eleuthera and Long Islands, in the West Indies and South America. Not common in the Bahamas.

**BUMELIA LORANTHIFOLIA** (Pierre) Britton (Milk Plum or Saffron).

A bushy shrub with dark, edible fruit about the size of a cherry. It is common on New Providence, Andros, Abaco and Eleuthera, and is found in southern Florida, Texas and Cuba.

**CULTIVATED FRUITS.**

In comparison with Jamaica, Cuba and many of the other West Indies, the number of fruits cultivated in the Bahamas is very small. This is probably due in large measure to the very restricted range of soil and climatic conditions in the latter group. We give below only those fruits that were actually seen by us; many others are given by Gardner, Brace and Dolley as cultivated in the Bahamas, and isolated specimens of most of them may no doubt still be found in gardens and door-yards.

**COCOS NUCIFERA** L. (Cocoanut Palm).

Plate XXVI, Fig. 2, and Plate LXXXV, Fig. 2.

One of the commonest trees in the Bahamas. It is partial to sandy soil near the sea, but unless some cultivation is given the fruit is of inferior size.

**PHÖENIX DACTYLIFERA** L. (Date Palm).

This fine palm was seen only on New Providence and on Watlings Island. It is said to occasionally ripen its fruit in Nassau.

*ANANAS SATIVUS* Lindl. (Pineapple).

Plate XXV, Fig. 2.

The pineapple is grown on most of the islands, and exported fresh or canned.

*MUSA SAPIENTUM* L. (Banana).

Plate XXVI, Fig. 1.

Bananas are grown in suitable pot-holes in the settlements throughout the Bahamas.

*MUSA PARADISIACA* L. (Plantain).

Plantains are grown in most available pot-holes, but the fruit is not exported.

*ARTOCARPUS INCISA* L. (Breadfruit).

Fruit and seeds both edible when roasted. Gardner, Brace and Dolley say that the bark, which is very tough, is beaten out into fine, white cloth by the natives of Tahiti and other islands of the Pacific. A tough gum, useful for calking boats, can be made from the sap.

*FICUS CARICA* Willd. (Fig.).

The edible fig is rare in the Bahamas, and we did not hear of it except in Nassau.

*ANONA SQUAMOSA* L. (Sweetsop or Sugar Apple).

A small tree seen only at Nassau. The fruit is fairly agreeable, but cannot compare with the mango.

*ANONA MURICATA* L. (Soursop).

A somewhat larger tree than the sweetsop. The fruit is pleasantly acid and makes a refreshing drink with sugar and water.

*PERSEA PERSEA* (L.) Cockerell (Avocado Pear).

A good-sized tree with pear-shaped fruit that is highly esteemed. I have seen this fruit in the New York markets, but it is not exported from the Bahamas. The tree is common around Nassau and in other settlements.

*TAMARINDUS INDICA* L. (Tamarind).

Plate XXX, Fig. 1.

When in full foliage the tamarind, with its delicate, compound leaves, is a very handsome tree, and it is a favorite on Nassau lawns. The pulp of the long fruit makes a very pleasant conserve.

*CITRUS AURANTIUM* L. (Orange).

*CITRUS RACEMOSUS* R. & P. (Grapefruit).

*CITRUS DECUMANA* Lour. (Shaddock).

*CITRUS SPINOSISSIMA* Meyer (Lime).

*CITRUS LIMOSUM* Ress. (Lemon).

All of the above citrus fruits, except the lemon and shaddock, are commonly planted and exported in greater or less quantities. Lemons are rarely seen.

*SPONDIAS PURPUREA* L. (Red Plum).

This tree was seen only in Nassau, where its fruit is sold on the streets.

*MANGIFERA INDICA* L. (Mango).

This tree, when the best varieties are secured, yields one of the few tropical fruits of real excellence that is not common in our markets. It is freely planted about Nassau, and may be found on most of the Out-islands.

*BLIGHIA SAPIDA* Koen. (Akee).

A fine tree, but by no means common in the Bahamas. The fleshy, yellow arillus of the seed is very good when cooked, but over-ripe fruit should be avoided, as it has been known to produce poisoning.

*MELICOCCA BIJUGA* L. (Genipe).

A large tree with compound leaves and plum-like fruits produced in clusters. It is a common plant in Jamaica, but is rare in the Bahamas. We found it escaped in the low coppice east of Nassau.

*MAMMEE AMERICANA* L. (Mammee).

A tall, handsome tree, with large russet-colored fruit of rather poor quality. It is not much planted except around Nassau.

*CARICA PAPAYA* L. (Papaw).

Plate XXXIII, Fig. 2.

This interesting plant is often seen in Bahama door-yards, and the natives seem fond of its fruit. To most visitors, however, it is far from attractive. The juice of the unripe fruit contains a digestive ferment which acts on meats and is often employed in place of pepsin.

**PUNICA GRANATUM L. (Pomegranate).**

The pomegranate is easily grown in the Bahamas, and its ornamental fruits and flowers make it a popular shrub in Nassau gardens.

**TERMINALIA CATAPPA L. (Almond).**

Plate XXXIV, Fig. 1.

A rather small tree with large, thick leaves that is common on the streets and landings of Nassau. This is not the true almond, but the fruit has an edible kernel. The tree is most valued for ornament and shade.

**ACHRAS SAPOTA L. (Sapodilla).**

A good-sized tree with russet-colored fruit that is very popular in the West Indies. It is freely cultivated on New Providence and most of the other islands of the Bahama group.

**TREES CULTIVATED FOR ORNAMENT.**

Some of the most common of these are the following:

**MELIA AZEDARACH L. (China Tree).**

A very attractive small tree of the same family as mahogany. The yellow wood takes a fine polish and has been used for interior work. The fruit is liked by animals and is useful as a vermifuge for horses. Sparingly naturalized.

**FICUS SAPOTIFOLIA Kunth and Benche (Tree fig).**

Plate XXXIV, Fig. 2.

The conspicuous fig tree at "Thomson's folly," near Nassau, is of this native species and not *Ficus bengalensis* L., the true banyan of India. Other native arboreal figs, such as *Ficus jacquinifolia* Rich. are well worthy of cultivation. The seeds of many species of *Ficus* often sprout on the trunks and branches of other trees and, sending down long roots to the ground, grow to such an extent as to destroy and supplant the host.

**CÆSALPINIA PULCHERRIMA Sw. (Pride of Barbados).**

A small tree closely related to the poinciana and, like it, a profuse and brilliant bloomer. It may be found in Nassau, but is not so freely cultivated as the poinciana.

**ROYSTONIA REGIA** (H. B. K.) O. F. Cook (Royal Palm).

Plate XXXV, Fig. 1.

This is one of the most beautiful of palms and grows to perfection in Nassau. It was introduced from Cuba.

**POINCIANA REGIA** (Boj.) Raf. (Royal Poinciana).

Plate LXXXIII, Fig. 2.

A small tree which when in full flower can scarcely be equalled for magnificent display. Its decorative value has secured for it a conspicuous place in most of the streets and gardens of Nassau.

**HURA CREPITANS** L. (Sand-box Tree).

Plate XXXVI, Fig. 2.

A low tree with a dense, rounded top, much used for street planting. As in so many other members of this family, the juice is very poisonous, but the wood is used in some countries for making canoes and for interior work.

**THESPESIA POPULNEA** Corr. (Sea-side Mahoe).

This is another favorite shade tree on Nassau streets, where its large leaves and showy flowers give it ornamental value.

**CEIBA PENTANDRA** (L.) Gaertn. (Silk-cotton Tree).

Plate LXXXVIII.

This is one of the most striking of all tropical trees. Its great spreading top, and immense trunk, flanked on all sides with buttresses, has won for it the admiration of all travelers. There are some very fine specimens in Nassau, but the old tree near the Postoffice, shown in the illustration mentioned above, is perhaps the most perfect example of its peculiar growth. This tree is said to have been brought from South Carolina and to have given rise to all the others on the island.

**CASUARINA EQUISETIFOLIA** Forst. (Spanish Cedar).

This peculiar Australian tree grows to a great size in Nassau. Several fine specimens may be seen along the street in front of the Postoffice square. It is cultivated on most of the islands and has become naturalized in several places.

*ALBIZZIA LEBBEK* Benth. (Woman's Tongue).

## Plate LXXXVI, Fig. 1.

A low, widely spreading tree that is much planted for shade. Its thin pods, when dry, keep up a constant rattling, whence the common name.

In addition to these, most of the trees mentioned as cultivated for their fruits are also of ornamental value.

Among the cultivated shrubs, the following are often seen: *Plumiera rubra* L. (Frangipani), *Thevetia thevetia* (L.) Millsp. *Nerium oleander* L. (Oleander), *Codiaeum variegatum* Blume (Croton), *Erythrina crista-galli* L. (Cock's-spur), *Lagerstræmnia indica* L. (Crape Myrtle), *Gardenia jasminoides* Ellis (Cape jessamine), *Punica granatum* L. (Pomegranate), *Hibiscus rosa-sinensis* L., *Tamarix gallica* L. (Tamarisk), *Viburnum opulus* L. (Snowball tree), *Tecoma stans* Juss. (Yellow elder).

Space does not permit the enumeration of the many other cultivated shrubs, vines and herbs, but one might mention the magnificent *Bougainvillea spectabilis* Poir., shown in Plate I, and the scarcely less attractive *Antigon leptopus* H. and B.

## BOTANICAL FORMATIONS IN THE BAHAMA ISLANDS.

To one accustomed to the grandeur of the forests of the United States and to the fresh and varied greens of our vegetation the impression produced by the low, monotonous growth of the Bahama Islands is distinctly disappointing. The color scheme is a dull, grayish-green, relieved occasionally, it is true, by dashes of brilliant color, such as scarlet, yellow, white, from plants in flower, but lacking power to attract and charm the eye. Standing on the top of the Blue Hills and looking northward towards Nassau (Plate XXV, Fig. 1), one sees the flaming crowns of the poinciana like burning coals in a bed of ashes; all else is subdued. The Bahamas also lack the fascination of the fern-clad mountains of Jamaica, where the delicate and water-loving species grow with a profusion that can scarcely be realized. For in these Islands there are no mountains, valleys, running streams, or fresh and quiet waters. Here nature does not seem so diverse, and the opportunities she offers for a varied life are restricted on every side by the rocky, calcareous soil and salt-laden wind.

But, on the other hand, the rigor of such conditions and the necessity of meeting them have brought about corresponding adaptations of habit and structure in the vegetation that are of the greatest interest to students of plant life. Space does not permit even a bare mention of the diverse means by

which the heat, salt, and wind are resisted and the difficulties of living solved; but some of the most noticeable may be referred to. The beach plants are particularly liable to be uprooted or buried by the shifting sand, and to meet this danger they are nearly always furnished with vegetative means of propagation, either by underground rhizomes (many grasses, as *Uniola*, *Sporobolus*), prostrate creeping branches which root at the nodes (*Ambrosia hispida* Pursh, *Distichlis maritima* Raf.), or recurved branches which root at their tips (*Tournefortia*, *Scævola*). Plate XLIV, Fig. 1, illustrates this habit. If one part is covered or uprooted another may continue the growth. Beach plants are also apt to have more or less succulent leaves, which are either polished or reflect the intense light (*Borrachia glabra* Small, *Scævola*), or hairy, to prevent too rapid evaporation (*Borrachia argentea* DC., *Tournefortia*), or the leaves may be hard, narrow, and inrolled (many grasses and sedges, *Rhacicallis*, *Suriana*, *Jacquinia*). The epidermis is generally very thick and the stomata are protected in various ways.

The scrubby coppice growth that makes up the greater part of the vegetation contains remarkably few succulent plants. There are no yuccas, few cacti, and but one species of agave.

The conditions, however, are generally arid; the porous rock drains quickly and there are often periods of excessive drought. The leaves are as a rule hard, and grayish in color from the presence of hairs or wax. In many species the young leaves hang vertically and are protected by rusty hairs. In *Langeria densiflora* (Griseb.) B. & H., a tree found on New Providence, the young leaves are coated with a kind of lacquer which, in dry weather, becomes very hard, and effectually prevents evaporation.

The plants of salt marshes and mangrove swamps possess many interesting and peculiar adaptations. In the case of *Rhizophora mangle* L. (Plate XLI, Fig. 1, and Plate LXXXIV, Fig. 2) the old leaves become much thicker and change their function from photosynthesis to water storage. The adventitious roots descend from the branches and, taking hold of the mud, extend the plant indefinitely. The fruits of this species germinate on the tree and are for a long time nourished by the parent plant. When they finally fall they float in the water root downwards, and on coming in contact with the bottom send out with remarkable rapidity the young roots that had already started to grow beneath the epidermis. *Avicennia nitida* Jacq., another mangrove plant, sends up from its underground roots others that rise perpendicularly out of the ground for a foot or more. These aerial roots, as

well as the underground ones, are very spongy, and the air taken in through their large lenticels can easily pass to the subterranean parts. The leaves of this plant secrete large quantities of salt, which collects in crystals on the surface.

In regard to the dispersal of seeds, there is a marked difference between the plants of the Bahamas and those of the United States. In the former there is a great preponderance of plants bearing fleshy fruits, *i. e.*, fruits adapted for distribution by birds, rather than those with hairy, winged, or barbed seeds and fruits fitted for transportation by the wind or by clinging to the hair of animals.

Of plants with barbed seeds or fruits we found only three species—*Petiveria alliacea* L., a common weed about Nassau; *Pavonia spinifex* Cav., a clambering shrub, and *Meibomia supina* (Sw.) Britton, a low herb. Those with seed for wind distribution are the epiphytic *Tillandsias* and *Orchidaceæ*, most of the *Compositæ*, *Typha*, *Swietenia*, *Casuarina*, and a few others. A number of beach plants produce seeds which are able to float for a long time without being damaged by the salt water, and these may thus become distributed over great distances through the movements of ocean currents.

#### PLANT FORMATIONS.

We will now pass to a systematic consideration of the various plant formations of the islands which were visited by the Expedition.

#### NEW PROVIDENCE.

In describing the vegetation of this island, we shall begin at the south shore, at the point where the South-side road meets the beach, and take up the formations observed in crossing to the north side.

**SAND-STRAND FORMATION.**—The south side of New Providence differs from the north side in its more regular and more sandy beaches, and it presents the typical sand-strand formation of tropical shores. At certain points along this exposure there are large areas of shoal water stretching out for hundreds of yards from the beach where the depth seldom exceeds a foot. Occupying this area is an open growth of *Avicennia nitida* Jacq., of stunted and contorted habit and with a height not often exceeding 2 or 3 feet. At high tide the smaller plants are almost covered with water. The appearance of these shrubs is well shown in Plate XLVII, Fig. 2. Along this southern coast the sand-strand formation may be divided, beginning seaward, into the five following associations:

1. *The Ipomea pes-caprae Association*.—Here the *Ipomea* itself is by no means abundant, occurring only rarely at considerable intervals, but the association corresponds to the *Ipomea* association of other tropical shores. At points where the *Ipomea* does not occur, its place is taken by the grasses, *Paspalum vaginatum* Sw. and *Sporobolus virginicus* Kunth. This grass strip varies in width from 1 to 10 feet, beginning at high water mark and running back the greatest distance where the next association is broken. The two grasses occurring here are both good sand-binders. *Paspalum* has thick trailing branches with leaves in tufts at the nodes, while *Sporobolus* has underground runners with closely tufted upright branches (Plate XLVII, Fig. 1).

2. *The Uniola-Tournefortia Association*, following the above, occupies the gently sloping, or in some places quite level, sandy strip that extends to the scrubby coppice behind. At the point where these observations were taken its width was from 3 to 12 feet. *Uniola paniculata* L. is not present at all points, but is scattered at intervals, sometimes in dense, pure growth, but frequently more open. Where the *Uniola* is absent, or scattered, its place is taken by large clumps of *Tournefortia gnaphalodes* R. Br. and *Scævola plumieri* L. mixed with *Suriana maritima* L., *Salmea petroboides* Griseb., *Strumpfia maritima* Jacq., and a little *Borrichia glabra* Small (or *B. argentea* DC.). The aromatic *Ambrosia hispida* Pursh occupies open spots in this association and penetrates more or less into the scrub behind. Its prostrate branches are often 10 or 12 feet in length, with upright shoots reaching a height of 6 to 12 inches. *Sesuvium portulacastrum* L. occurs here also, but is not so abundant as *Ambrosia*. Its fleshy procumbent stems reach a length of 6 feet, and from every node are produced short lateral branches of a rather definite length. These also lie flat, except at the tips, which are turned upward, but they rarely root and may be characterized as "kurtztriebe." The main stems do not take root at every node but only at intervals of about 2 feet.

3. *Pithecolobium-Salmea Association*.—This begins immediately behind the association last mentioned. Its principal plants are *Pithecolobium keyense* Britton (Ram's horn), *Salmea petroboides* Griseb., *Torrubia longifolia* (Heimerl) Britton (Blolly), *Jacquemontia jamaicensis* (Jacq.) Hall, *Erithalis fruticosa* L. (Black torch), *Lantana involucrata* Sw. (White lantana), *Ernodea littoralis* Sw., and *Solanum bahamense* L. (here without spines on the leaves), with an occasional tuft of *Cyperus brunneus* Sw. The scrubs of this formation are low and dwarfed, generally not more than 3 feet high. They

occupy the outer slope of the low ridge of wind-blown sand that skirts the shore. As the crest of this ridge is approached, the sand becomes mixed with a little more humus and there is a rather sudden transition into the higher growth of the next association.

4. *Erihalis-Reynosia* (or *littoral sand-coppice*) Association.—This occupies the flat top, not often over 12 or 15 feet wide, of the sand ridge just mentioned, and the growth averages about 8 feet, rarely reaching 12 feet in height. Most of the plants mentioned in this last association occur here also, but the principal constituents are *Erihalis fruticosa* L. (Black torch), *Reynosia septentrionalis* Urban (Darling plum), *Metopium metopium* (L.) Small (Poison-wood), *Torrubia longifolia* (Heimerl) Britton (Blolly), *Salmea petrobioides* Griseb., *Rapanea guianensis* Aubl. (Beef-wood), and *Ilex krugiana* Loes. *Genipa clusiaeifolia* Griseb., *Acacia choriophylla* Benth. (Cinnecord), *Bumelia loranthifolia* (Pierre) Britton (Milk plum), *Bourreria havanensis* (L.) Miers (Strong back), *Bumelia microphylla* Griseb. (Ink-berry), and *Uniola racemiflora* Trin. are less commonly present.

5. *The Silver Palm Association* covers the inner slope of the ridge and extends to the edge of the marshy depression behind. As the name implies, the silver palm is the character growth here. Its height varies from 8 to 14 feet and it is by far the most conspicuous plant of this area. Of the under-growth, *Uniola racemiflora* Trin. is most abundant. Mixed with it are dwarf specimens of *Pithecolobium keyense* Britton, *Torrubia longifolia* (Heimerl) Britton, *Salmea petrobioides* Griseb., *Erihalis fruticosa* L., *Rapanea guianensis* Aubl., *Bourreria havanensis* (L.) Miers, *Lantana involucrata* Sw., *Ernodea littoralis* Sw., *Corchorus hirsutus* L., *Reynosia septentrionalis* Urban, *Cordia bahamensis* Urban, and *Metopium metopium* (L.) Small.

FRESH-MARSH FORMATION.—This occupies a long depression behind the beach where the soil is saturated or entirely covered with shallow water. Thatch palms (*Inodes palmetto* (Walt.) Cook) are abundant on the damp margins of the marsh and a few also penetrate into the shallow water. *Cladium effusum* Torr., *Willughbaya heterophylla* Small, *Centella repanda* (Pers.) Small, the attractive, white-flowered *Sabbatia complanata* (L.) Britton and *Ipomea sagittata* Cav., with large purple flowers, are also common as marginal plants. Further out large clumps of *Anona palustris* L. (Custard apple) appeared, and a little *Rhizophora mangle* L. (Mangrove) in deeper places gave evidence that the water was not quite fresh. This formation is about one-half mile wide and passes northward into the next.

**PINE-BARREN FORMATIONS.**—The pine-barrens of New Providence may be divided into two distinct formations, the Wet-barrens and the Dry-barrens. For the character of the soil the reader is referred to the section on Bahama Stony-loam in the chapter on Soils of the Bahama Islands.

1. *The Wet-barrens*, into which the fresh marsh passes to the northward, are about three-quarters of a mile in width at the point where they are crossed by the South-side road. The ground, which is composed of more or less honey-combed rock, is not wet except in depressions, but the water is constantly within a few inches of the surface. The formation differs from the typical pine-barrens in the occurrence of the *Inodes palmetto* (Walt.) Cook (Thatch palm), and differs from the wetter marsh in the occurrence of the pine. It is intermediate ground where the pines and palms intermingle. The larger growth, which consists almost entirely of these two trees, is open and scattered; the slender pines reach a height of 20 to 35 feet; the palms of 15 to 20 feet. A few small specimens of *Metopium metopium* (L.) Small, *Exostemma caribaeum* (Jacq.) R. & S. and *Coccolobis laurifolia* Jacq. are scattered here and there, but they rarely reach the dignity of trees. The undergrowth is low and open, and its principal shrubby components are *Corchorus hirsutus* L., *Pithecolobium keyense* Britton, *Torrubia longifolia* (Heimerl) Britton, *Tecomia bahamensis* Northrop, *Lantana involucrata* L., *Cordia bahamensis* Urban, *Byrsinima lucida* (Sw.) DC., and *Bourreria havanensis* (L.) Miers. The vines, which form a very conspicuous part of the plant covering, are *Willughbæya heterophylla* Small, *Smilax beyrichii* Kunth, *Rhabdadenia sagræi* (A. DC.) Small, *Rajania hastata* L., and the parasitic *Cassytha filiformis* L. *Turnera ulmifolia* L., *Evolvulus sericeus* Sw., *Lippia stæchadiifolia* Kunth, *Decromena colorata* Hitch. (the "showy sedge"), *Chloris petræa* Thunb., and a species of *Andropogon* are the principal herbaceous species. Here and in the next formation the little fern *Ornithopteris adiantoides* (Sw.) Presl. is most at home.

2. *The Dry-barrens*, into which the above formation passes, extend across the central part of the island to the base of the Blue Hills, a distance of about 5 miles. The pines rarely reach a large size, being generally slender and from 20 to 35 feet high. Occasionally, however, a much larger specimen is seen (Plate XXXV, Fig. 2). *Coccothrinax jucunda* Sarg. (Silver-thatch palm) is, next to the pine, the most conspicuous and abundant tree. It is occasionally 12 feet high, but generally smaller. As undergrowth, the following plants are dominant: *Metopium metopium* (L.) Small

(Poison-wood), *Rapania guyanensis* Aubl. (Beef-wood), *Tecoma bahamensis* Northrop, *Petetia pappigii* Schan., *Duranta plumieri* Jacq. (Wild bittersweet), *Fagara coriacea* (A. Rich.) Kr. & Urb. (Hercules club), *Acacia choriophylla* Benth. (Cinnecord), *Cassia* sp., *Tetrazygia bicolor* (Mill.) Cogn. (Wild guava), *Ascyrum hypericoides* L., *Cordea bahamensis* Urban, *Pithecolobium keyense* Britton (Ram's horn), *Ernodea littoralis* Sw., *Vernonia bahamensis* Griseb., *Turnera ulmifolia* L., *Rajania hastata* L. (Wild yam), *Smilax beccariana* Kunth, *Setaria glauca* (L.) Scribn., *Decromena colorata*, and the tough fern, *Pteridium caudatum* (L.) Kuhn. In rock holes, which are abundant, the orchid *Bletia verecunda* Sw. is common. As the foot of the Blue Hills is approached, the pine-barrens terminate abruptly and the next formation begins.

COPPICE FORMATIONS.—As in the case of the pine-barrens, the coppice growth of New Providence may be divided into two rather distinct formations—the High-coppice and the Low-coppice.

1. *High-coppice*.—This covers the southern slope of the Blue Hills, and parts of the northern slope, particularly to the west of Nassau. The soil is composed of porous rocks, rather soft, and filled with innumerable excavations of all sizes. It is of the type described as Bahama black-loam in the chapter on Soils of the Bahama Islands. As an example of the plant covering of this formation, we shall take that section of growth at the junction of the Blue Hills road and Soldiers road, about three miles south of Nassau. A photograph of this spot is reproduced in Plate XXVII, Fig. 2. There is considerable soil of dark, sandy loam covering the rocks, and the trees stand close together. There is very little undergrowth on the densely shaded ground. The principal woods growing here are *Coccolobis laurifolia* Jacq. (Pigeon plum), *Rapania guyanensis* Aubl. (Beef-wood), *Swietenia mahogani* Jacq. (Mahogany), *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Metopium metopium* (L.) Small (Poison-wood), *Lysiloma latisiliqua* (L.) Benth. (Wild tamarind), *Ilex kruiana* Loes., *Ilex repanda* Griseb., *Simaruba glauca* Kunth, *Lucuma multiflora* A. DC. (Wild mambee), *Pera humilifolia* Griseb., *Erythroxylon brevipes* DC. (Sareto), *Acacia choriophylla* Benth. (Cinnecord), *Thouinia discolor* Griseb. (Red-wood), *Tecoma bahamensis* Northrop, *Isacoria paniculata* (Nutt.) Sudw. ("Maple"), *Exothea paniculata* (Juss.) Radlk. (Butter-bough), and *Amyris elemifera* L. (White torch). The largest tree in this coppice was the wild tamarind. Specimens were 2 feet 6 inches in diameter at base, and 35 feet in height, with large, wide-spreading tops. Next to it in size was *Simaruba*

*glauca* Kunth, with a diameter of 18 inches and a height of 40 feet. Almost as large was *Pera humeliaefolia* Griseb. and *Swietenia mahogani* Jacq., with a diameter of 1 foot and a height of 35 feet. The mahogany was badly ringed with sapsucker holes and it was also the only tree attacked by *Phorodendron*. *Cinnecord*, *butter-bough* and *Tecoma*, which are generally low and scrubby, were here tall and slender, with a height of 20 to 25 feet.

2. *Low-coppice Formation*.—This covers most of the northern slope of the Blue Hills and a large part of the flat country on the north and east sides of the island. In a drive from Nassau to Mt. Vernon and around by Village road and Wolf road one passes through a typical low coppice growth. The soil is Bahama black-loam of the variety known as "plate rock," discussed in the chapter on the Soils of the Bahama Islands. A few trees, such as *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Metopium metopium* (L.) Small (Poison-wood), *Dipholis salicifolia* A. DC. (Wild cassada), and *Swietenia mahogani* Jacq. (Mahogany), project occasionally above the general level, but even these are much smaller than in the High-coppice. The average height of the covering is about 10 to 15 feet, and a great variety of species struggle with each other here for the scanty sustenance that the rocks afford.

Among the small trees and scrubs, which are the predominant growth, the following are common: *Exothea paniculata* (Juss.) Radlk., *Bourreria havanensis* (L.) Miers, *Coccolobis laurifolia* Jacq., *Hypelate trifoliata* Sw., *Bumelia loranthifolia* (Pierre) Britton, *Savia bahamensis* Britton, *Erihalis fruticosa* L., *Hæmatoxylon campechianum* L., *Picramnia pentandra* Sw., *Byrsinima lucida* (Sw.) DC., *Macreightia caribæa* A. DC., *Anastraphia northropiana* Grenm., *Tecoma bahamensis* Northrop, *Torrubia longifolia* (Heimerl) Britton, *Torrubia obtusata* (Jacq.) Britton, *Psychotria undata* Jacq., *Ocotea catesbyana* (Michx.) Sarg., *Fagara fagara* (L.) Small, *Duranta repens* L., *Leucaena glauca* (L.) Benth., and *Krugiodendron ferreum* (Vahl.) Urban. *Helicteres spiralis* Northrop, *Melicocca bijuga* L. and *Croton eleuteria* Sw. are less often seen.

The principal vines are *Triopteris rigida* Sw., *Jacquemontia jamaicensis* (Jacq.) Hall, *Smilax beyrichii* Kunth, *Smilax havanensis* Jacq., and *Smilax oblongata viscidifolia* (Derham.) Schulz. The long, yellow threads of the parasitic *Cassytha filiformis* Jacq. often cover and greatly injure the other growth. It was only in this formation that we found *Vanilla articulata* Northrop on New Providence. Its succulent stems were sometimes rooted and sometimes not. In the latter case it lives entirely as an epiphyte.

**SALT-MARSH FORMATION.**—Near the foot of the north slope of the Blue Hills and directly south of Nassau, the Low coppice is interrupted by a large tract of marshy land in the center of which is a considerable pond of water. This rises and falls with the tides and is almost as salty as the sea itself. The soil consists of honeycombed rocks, with edges so sharp that walking is difficult. Within the innumerable crevices there is a deposit of soft, sticky, white ooze, described in the chapter on Soils of the Bahama Islands as "brackish swamp marl," which to all appearances is as barren as the rock itself. On the edges of the pond this ooze completely covers the rock, and the conditions for plant growth are here so unfavorable that only the extremely resistant *Aster tenuifolius* L. and *Distichlis maritima* Raf. have gained a footing. Both of these species have long rhizomes running an inch or two under the surface and sending up aerial shoots at the nodes. They cover the soil rather closely in places, but are absent in others. Behind these where the honeycombed rock is exposed is an exceedingly dwarfed and prostrate growth of *Conocarpus erecta sericea* Fors. and *Rhacicallis maritima* (Jacq.) Schum. Their gnarled and contorted stems run like snakes among the knife-like edges of the rocks. But in spite of all discouragements, these plants were bearing fruit, even when less than 6 inches in height. Even here the parasitic *Cassytha* was running along the rock from plant to plant and attacking everything in its way. Further from the margin of the water other low scrubs began to appear, still much dwarfed, but not so prostrate. Among these were *Torrubia longifolia* (Heimerl) Britton (Blolly), *Bumelia microphylla* Griseb. (Ink-berry), *Jacquinia keyense* Mez. (Joe-bush), and *Mimusops sieberi* A. DC. (Wild sapodilla). The two grasses, *Uniola paniculata* L. and *Uniola racemiflora* Trin., also found a place here, and several species of *Tillandsia* attached themselves to the shrubbery, even in the most exposed situations (Plate XL, Fig. 2). On the eastern end of the marsh, where conditions were more favorable to growth, the *Conocarpus* reaches 15 feet in height, and *Iva cheiranthifolia* Kunth, and *Cladium effusum* (Sw.) Torr. appear in considerable abundance. Near the outer edges of the marsh the *Coccothrinax jucunda* Sarg. (Silver-thatch palm) forms a conspicuous fringe and at about this point the ordinary low coppice growth comes in.

The vegetation of the fresh marshes that extend for some distance along the north shore just behind the beach to the west of Nassau, is very similar to what has been already described for similar situations on the south side, but some plants were common here that were not found on that side. Among

them may be mentioned *Myrica cerifera* L., *Baccharis angustifolia* Michx., and *Sagittaria lancifolia* L. Plate XXXVII, Fig. 1, is a view of a fine *Inodes palmetto* (Walt.) Cook (Thatch palm) standing in one of these fresh marshes on the north side.

**ROCKY-SHORE FORMATION.**—The north shore of New Providence differs from the south shore in the occurrence of exposed rocks at many places. These rocks are at some points precipitate; at others they form a gentle slope, and in such places are apt to be covered for some distance with a coating of sand next to the sea. In such sandy situations the vegetation is very similar to that of the south beach; but where the rocks are exposed there is an abrupt change. In many places the exposed rocks are covered with a dense growth of *Rhacicallis maritima* (Jacq.) Schum, and *Suriana maritima* L. in pure association, the sand-strand plants being entirely absent. Behind the *Rhacicallis* and *Suriana* is *Coccolobis uvifera* (L.) Jacq. and the attractive white-flowered *Genipa clusiæfolia* (Jacq.) Griseb. Following these and extending slightly into them are found the ram's horn, darling plum, blolly, jack-bush, wild lime and other littoral coppice plants. At places *Hymenocallis arenicola* Northrop forms attractive clumps of bloom.

#### MANGROVE CAY, ANDROS.

Here for the first time we met with a forest in the Bahama Islands. Passing over a range of hills and down a long slope, we came to a low, irregular country where the growth gradually became higher until it finally passed into what might be called a forest, where the *Lysiloma paucifolia* (DC.) A. S. Hitch. (Horseflesh), *Lysidoma latisiliqua* (L.) Benth. (Wild tamarind), *Fagara coriacea* (A. Rich.) Kr. & Urb. (Doctor's club), and *Hypelate trifoliata* Sw. (Red-wood) reached a height of 40 to 50 feet with a diameter of 2 feet or more. Next to these in size, with a height of 30 to 40 feet, were *Coccolobis laurifolia* Jacq. (Pigeon plum), *Metopium metopium* (L.) Small (Poison-wood), *Ichthyomethia piscipula* (L.) Hitch. (Dogwood), and *Swietenia mahogani* L. (Mahogany). The growth was thick and the shade dense. The floor of rock was deeply excavated and very irregular, and in crevices and depressions were deposits of black-loam, where fleshy fungi were rather abundant. On rotting wood we collected in a few minutes all of the Myxomycetes listed in this report, and there is no doubt that a thorough search would discover a large number of this group on Andros.

On the shoreward side of the hills just mentioned, where an uneven plain

extends to the sand-strand, we found large specimens of the two figs, *Ficus sapotifolia* Kunth & Benche and *Ficus jaquinifolia* Rich., the one with large, the other with small leaves. Both are shown in Plate XXXIX, Fig. 2. Near the base of one of these fig trees was a deep banana hole where the fungi grew. Along the solid walls of this depression the fig roots hung in twisted ropes through circular holes that they had cut in the calcareous rock. Near this point, on the surface of the rocks, grew an abundance of our common *Portulaca oleracea* L. (Purslane), with other plants that are usual in the low coppice. A few hundred feet away, on the slope of the hill, grew *Lysiloma paucifoliola* (DC.) A. S. Hitch. (Wild tamarind), *Swietenia mahogani* L. (Mahogany), *Coccolobis laurifolia* Jacq. (Pigeon plum), *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Acacia choriophylla* Benth. (Cinnecord), *Metopium metopium* (L.) Small (Poison-wood), and *Eugenia confusa* DC. (Stopper). None were more than 25 feet in height. On the shore at this point we took a photograph of a fine specimen of *Tournefortia gnaphaloides* (Jacq.) R. Br. which showed to perfection its method of multiplication by off-shoots from the rooting tips of descending branches (Plate XLIV, Fig. 1).

In the shallow water separating Mangrove Cay from Little Mangrove Cay—the latter a very small island, only a few hundred yards from shore—grew *Halophylla engelmannii* Aschers, a delicate aquatic flowering plant of the family *Eloideaceæ* that had not before been found in the Bahamas. With it grew *Coccocladus occidentalis* (Harv.) Cramer, in great quantities, looking like miniature *Myriophyllum*. At other points in the shallow water along the shore we collected *Penicillus capitatus* Lamarck (Mermaid's shaving brush), *Udotea conglutinata* (Ell. & Soland) Lamour, and the curious *Rhipocephalus phænix* (Ell. & Soland) Kuetz., which stood like toy trees on the sandy bottom. Among them were *Caulerpas* and a number of other sea weeds that are given from Andros in the list.

Off this point the dredge was let down in about 4 fathoms of water and a number of other sea-weeds were secured.

#### GREEN CAY.

Running east and west near the south side of this island is an elevated ridge which supports a fairly high coppice growth. Between this ridge and the north shore is a low coppice of maritime plants with occasional depressions of marshy areas. The vegetation of these depressions shows brackish conditions, *Conocarpus*, *Avicennia*, *Anona palustres* L., *Cladium effusum* Torr. and

*Sesuvium portulacastrum* L. being the characteristic growth. A considerable part of the dry area of the low coppice is set with scattered *Coccothrinax jucunda* Sarg. (Silver-thatch palms), some specimens 12 feet high. In lower and damper places the *Thrinax bahamensis* Cook (Goat palm) takes its place. Both of these palms were in bloom during our visit. The flowers of the first had a disagreeable, fetid odor, while those of the second had a pleasant, honey-like fragrance. The latter palm is lower than the first, not often reaching over 6 feet. The low coppice in which these palms were scattered was composed principally of *Pithecolobium keyense* Britton (Ram's horn), *Jacquinia keyensis* Mez (Joe-bush), *Reynosia septentrionalis* Urban (Darling plum), *Colubrina colubrina* (L.) Millsp. (Wild coffee), *Cassia lineata* Sw., and *Antirrhæa myrtifolia* (Griseb.) Urban, the latter with delightfully fragrant flowers. The higher coppice on the hills was of the usual sort, but contained, in addition to the plants ordinarily found on New Providence, *Guaiacum sanctum* L. (Lignum vitæ), which was very attractive with its pretty blue flowers. Covering the barren rocks behind the beach was a low growth of *Ernodea littoralis* Sw., which, unlike any others seen, had white flowers; *Genipa clusiifolia* (Jacq.) Griseb., *Catesbæa fasciculata* Northrop, and *Antirrhæa myrtifolia*. *Passiflora foetida* L. was growing among these scrubs, and extended in some cases almost to the edge of the water. One specimen was standing perfectly erect in a pocket of sand near the shore. Extending across the bare sand of the beach was *Cassytha filiformis* L., attaching itself to the plants that came in its way. At places where its yellow filaments came into contact with the sand, suckers were produced which caught hold of the soil particles and helped to secure the stems in position. Plate XLVII, Fig. 2, shows the beach on Green Cay with the low coppice in background.

#### CURRENT SETTLEMENT, ELEUTHERA.

The island at this point is about one-half mile wide and trends approximately north and south. The town is situated on the east side and about a mile below it the island is cut through by a deep current bordered by solid rock cliffs. The west beach is very rocky, but in places there are sandy areas of considerable extent. In one of these sand inlets grew a fine clump of large and small *Inodes palmetto* (Walt.) Cook (Thatch palm). They occupied a marshy depression where they were no doubt able to procure practically fresh water. Between the palms and the beach was a fine garden of *Hymenocallis* in full bloom. Here also grew *Corchorus hirsutus* L.,

*Evolvulus arbusculus* Poir., with pretty little white, saucer-shaped flower; *Cenchrus tribuloides* L., *Ipomoea pes-caprae* L., and *Euphorbia buxifolia* L. *Suriana maritima* L. also occurred, but *Coccolobis uvifera* (L.) Jacq., *Tournefortia gnaphalodes* (Jacq.) R. Br. and *Scævola plumieri* Vahl. were absent. On the rocky sides of the passage above mentioned grew *Rhacicallis maritima* (Jacq.) Schum., *Erithalis fruticosa* L., *Torrubia longifolia* (Heimerl) Britton, *Conocarpus erecta* L., *Phyllanthus epiphyllanthus* L., *Genipa clusiæfolia* (Jacq.) Griseb., and an occasional clump of *Uniola racemiflora* Trin.

Running north and south near the center of the island is an elevated ridge where the coppice is quite high for Eleuthera. The largest trees of this growth were *Coccolobis laurifolia* Jacq., *Bursera simaruba* (L.) Sarg., and *Sideroxylon masticodendron* Jacq., the latter reaching 20 feet in height with a base diameter of 2 feet. *Metopium metopium* (L.) Small (Poison-wood) was not seen at any point at this landing, and it is evidently rare in the northern part of Eleuthera.

Near the base of the ridge on the western side were growing a number of specimens of the tall, columnar *Pilocereus lanuginosa* Rumpl., which we here saw for the first time.

Opposite the town the central ridge drops considerably into a slightly elevated, rocky plane, where the covering is of the low coppice type. Here occur *Coccolobis laurifolia* Jacq. (Pigeon plum), *Bumelia loranthifolia* (Pierre) Britton (Milk plum), *Fagara fagara* (L.) Small (Wild lime), *Bursera simaruba* (L.) Sarg. (Gum-eleimi), *Torrubia longifolia* (Heimerl) Britton (Blolly), *Bumelia microphylla* Griseb. (Ink-berry), *Picrodendron baccatum bahamense* Kr. and Urb., *Ichthyomethia piscipula* (L.) Hitch. (Dogwood), *Pithecolobium keyense* Britton (Ram's horn), *Acacia choriphylla* Benth. (Cinchona), and *Hæmatoxylon campechianum* L. (Logwood). The principal vines were *Serjania subdentata* (Juss.) Poir., *Gouania domingensis* L., and *Parthenocissus quinquefolia* (L.) Planch. In sandy places *Lantana crocea* Jacq. and *Lantana involucrata* L. were abundant. The eastern shore is sandy and has the usual growth of such situations as *Iva imbricata* Walt., *Coccolobis uvifera* (L.) Jacq., *Cenchrus tribuloides* L., *Euphorbia buxifolia* L., etc.

#### SPANISH WELLS, GEORGE ISLAND.

The town of Spanish Wells is situated on a sandy plain which covers a considerable part of the south side of the island. The growth on this sand flat differs from that on any situation we have mentioned. It may be called the

*Lantana-Corchorus* Association. It is in such soil that the cocoanut palm particularly flourishes. Here grow *Lantana crocea* Jacq., *Lantana involucrata* L., *Corchorus hirsutus* L., *Baccharis dioica* Vahl., *Solanum havanense* Jacq., *Bumelia loranthifolia* (Pierre) Britton, *Torrubia longifolia* (Heimerl) Britton, *Acacia choriophylla* Benth., *Chrysobalanus icaco* L., *Chrysobalanus fellocarpus* Meyer, and the vines *Jacquemontia jamaicensis* (Jacq.) Hall., and a species of *Clitoria*. The east shore of the island is also sandy, and here were some low dunes covered with a scrubby growth. At places where these dunes were being encroached upon by the sea, the long, deep roots of *Pithecolobium keyense* Britton, *Erihalis fruticosa* L., *Torrubia longifolia* (Heimerl) Britton, *Coccolobis uvifera* (L.) Jacq., and *Jacquinia keyense* Mez were exposed. Other plants of the dunes were *Corchorus hirsutus* L., *Coccothrinax jucunda* Sarg., *Scævola plumieri* Vahl., *Ambrosia hispida* Pursh, *Uniola paniculata* L., and *Suriana maritima* L. These dunes were about 10 feet in height, being the only ones of any consequence seen except those at Governors Harbor, Eleuthera.

A visit of a few hours was made to the mainland of Eleuthera opposite George Island. Here a fine grove of cocoanut palms occupied a sandy inlet on the rocky shore. Among the cocoanuts the undergrowth was principally *Corchorus* with a little *Lantana*, *Euphorbia* (Horse bean), etc. On the rocks behind this sand inlet was a low coppice of *Sideroxylon mastichodendron* Jacq., *Fagara fagara* (L.) Small, *Coccolobis laurifolia* Jacq., *Torrubia longifolia* (Heimerl) Britton, *Amyris elemifera* L., and *Bursera simaruba* (L.) Sarg. Among these a few plants of *Opuntia tuna* Mill. were seen. No poison-wood was found either here or on George Island, while *Byrsonima lucida* (Sw.) DC. (Sweet margaret) and *Duranda plumieri* Jacq. (Wild bittersweet) were not noticed at any place on Eleuthera.

#### GREGORY TOWN, ELEUTHERA.

At this point the coast is rocky and precipitate on both sides of the island. From shore to shore the distance is about 3 miles, and near the eastern side the country is cut by a number of irregular ridges extending north and south. Landing at Gregory Town on the west side, we went across the island, passing first through pineapple fields on red soil behind the town. These fields were infested with the *Leucæna glauca* (L.) Benth. (Jumby bean), which is often a troublesome weed in such situations. Passing the pineapples, we ascended the slope of a high ridge which was covered

with a low, dense growth of scrubs and trees. The most common species were *Fagara fagara* (L.) Small (Wild lime), *Bourreria havanensis* (L.) Miers (Strong back), *Bumelia microphylla* Griseb. (Ink-berry), *Reynosia septentrionalis* Urban (Darling plum), *Coccolobis laurifolia* Jacq. (Pigeon plum), *Eugenia confusa* DC. (Stopper), *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Acacia choriophylla* Benth. (Cinnecord), *Baccharis dioica* Vahl. (Broom-bush), *Torrubia longifolia* (Heimerl) Britton (Blolly), and *Melochia tomentosa* L. Here we passed for the first time a few plants of the beautiful, yellow-flowered *Catesbea spinosa* L., which was afterwards found in great abundance at Clarence Harbor, Long Island. The principal vines among this scrubby growth were *Smilax beyrichii* Kunth, *Jacquemontia jamaicensis* (Jacq.) Hall, *Serjania diversifolia* Radlk., and a species of *Passiflora*.

On the flat top of the ridge were found, in addition to most of the plants just mentioned, occasional specimens of *Ichthyomethia piscipula* (L.) Hitch. with its peculiar winged and jointed pods; also *Lantana involucrata* L., *Ficus sapotifolia* Kunth & Benche, *Tecoma bahamensis* Northrop, with almost white flowers, *Erythalis fruticosa* L., *Xylosma ilicifolia* Northrop, and the spiny blue-flowered *Anthacanthus acicularis* Nees., here first seen in bloom.

On the top of the long, gentle slope descending eastward from the summit of this ridge were considerable areas of hard, smooth rock, broken irregularly with deep depressions. Exposed to the full force of the sun and wind and absolutely bare of soil, except in the crevices, these rocks seemed nevertheless a paradise for vines, which covered them to the exclusion of all other growth. Here flourished *Serjania diversifolia* Radlk., *Cissus sicyoides* L., *Parthenocissus quinquefolia* (L.) Planch., *Galactia rudolphioides* (Griseb.) Benth. & Hook., *Rhabdadenia biflora* (Jacq.) Mill., and *Smilax beyrichii* Kunth. In the deep depressions among these vine-clad rocks grew *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Bumelia microphylla* Griseb. (Ink-berry), and *Ficus sapotifolia* Kunth & Benche, while in the smaller crevices were stunted specimens of *Phyllanthus epiphyllanthus* L. (Hardhead) and *Fagara fagara* (L.) Small (Wild lime).

The long eastern slope of the high ridge is broken about half-way down by a second smaller ridge, which rises to about 60 feet above the sea, and slopes gently down to the precipitate cliffs that form the shore. The type of growth that covers this eastern slope presents a different appearance from

anything seen on any of the other islands. It is a typical scrub; low, rigid and almost impenetrable. The conditions are extremely xerophytic and the growth in consequence is low and depauperate, rarely reaching a height of over 3 feet. There is no appreciable soil, the hard rock ringing like metal under foot. In spite of all discouragements, the covering was dense, forming an almost unbroken surface. It was composed principally of the following plants: *Baccharis dioica* Vahl. (Broom-bush), *Croton eleuteria* Sw. (Cascarilla), *Coccolobis laurifolia* Jacq. (Pigeon plum), *Phyllanthus epiphyllanthus* (L.) (Hardhead), *Anthacanthus acicularis* Nees., *Lantana crocea* Jacq., *Lantana involucrata* L., *Acacia choriophylla* Benth. (Cinnecord), *Bumelia microphylla* Griseb. (Ink-berry), and *Jacquinia keyensis* Mez (Joe-bush). About 300 yards from the sea, where the ground becomes almost level, the growth is somewhat higher, and a few species not occurring on the hillside find a footing. Among them are *Erithalis fruticosa* L. (Black torch), *Coccolobis laurifolia* Jacq. (small-leaved Pigeon plum), and *Bursera simaruba* (L.) Sarg. (Gum-elemi). Here was beautifully shown the effects of wind action on plant growth. The scrub was about 6 feet high, and formed a dense, canopied roof, open beneath. The trunks were naked and gnarled, often prostrate and rooting at intervals. Rising here and there from among the low growth on the hill slope appeared the great flower-shoots of *Agave rigida* Mill., some reaching a height of 35 feet (Plate XL, Fig. 1). Their appearance only accentuated the barrenness of the scene.

For a distance of about 50 feet from the sharp edges of the rocky shore, the surface is entirely bare of vegetation; then begins to appear a little *Suriana maritima* L. and *Borrachia glabra* Small, which gradually collects itself into a more or less distinct line. Following this is a fringe of *Rhacicallis maritima* (Jacq.) Schum., with *Sesuvium portulacastrum* L. creeping among it. It is peculiar that the *Rhacicallis* here appears behind and not in front of the *Suriana* and *Borrachia*. At one spot near the sea a depression in the rock of about 100 yards in length and 60 feet in breadth had become filled in with sand. The covering here formed a sharp contrast to that of the rocks. It consisted of beautiful areas of *Uniola paniculata* L., broken with dense patches of *Hymenocallis arenicola* Northrop in full flower, with *Euphorbia buxifolia* L. and *Ipomoea pes-caprae* L. creeping on the outskirts. A fine-growth of large and small *Inodes palmetto* (Walt.) Cook (Thatch palms) formed a background to the lower growth.

## GOVERNORS HARBOR, ELEUTHERA.

Landing in the town on the west side of the island, the first thing of interest observed was a grove of *Casuarina* trees under which were a great number of their seedling plants. These seedlings were most abundant in damp soil on the edge of a small, brackish marsh. They were the only young *Casuarinas* that we saw during the trip. In only two other places had we noticed that *Casuarina* had established itself uncultivated. These were on New Providence, where one or two small trees were seen on the south beach and near the margins of the salt marsh described in the treatment of that island.

Passing over the usual ridge through the center of the island, we found on the eastern beach the best example of dunes that we met with in the Bahamas. These dunes, the highest of which were about 40 feet above the sea, are arranged in a broken series with slight depressions between them. They slope landward to a low meadow of *Cynodon dactylon* (L.) Kuntze (Bermuda grass), which passes easily into the rocky slope of the hills behind. The beach at the foot of the dunes is covered at high-tide mark by an association of *Uniola paniculata* L., *Tournefortia gnaphalodes* (Jacq.) R. Br., *Iva imbricata* Walt., and *Cakile æqualis* L'Her. Behind these is a fringe of tall *Suriana maritima* L. with which is mixed a little *Salmea petroboides* Griseb. and *Cenchrus tribuloides* L. *Cyperus brunneus* Sw., *Cenchrus* and *Salmea*, together with scattered individuals of *Agave rigidæ* Mill., cover the seaward slope of the dunes and their outer ridges are occupied by *Uniola paniculata* L., *Cyperus brunneus* Sw., and fine beds of *Hymenocallis arenicola* Northrop. The slight depression between the outer and inner ridges is filled with *Setaria glauca* (L.) Scribn., *Chloris petræa* Desv., *Salmea petroboides* Griseb., *Agave rigidæ* Mill., and *Hymenocallis arenicola* Northrop, which is here even more abundant than on the higher places. The tops of the inner ridges are covered with *Chloris petræa* Desv., *Cyperus brunneus* Sw., *Strumpfia maritima* Jacq., *Salmea petroboides* Griseb., *Euphorbia burifolia* L., and the trailing *Am-brosia hispida* Pursh. *Urechites andrewsii* (Chapm.) Small, here low, bushy and scarcely trailing, is also rather abundant. The abrupt, landward slope of the dunes is furnished with an open growth of *Setaria glauca* (L.) Scribn., *Cenchrus tribuloides* L., *Leptilon canadense* (L.) Britton, and *Malpighia polytricha* Juss. The latter is here very depauperate, and not over a foot and a half high.

The growth on the western slope of the central elevation is not of the

strongly xerophytic type mentioned above at Gregory Town, but is of the usual low coppice character. Here was growing a little *Metopium metopium* (L.) Small (Poison-wood), the first seen on Eleuthera, and a few specimens of *Bunchosia glandulosa* Rich., a rare plant in the Bahamas; but the most abundant species were *Lantana crocea* Jacq., *Lantana involucrata* L., *Croton lucidus* L., *Fagara fagara* (L.) Small, *Bumelia microphylla* Griseb., *Melochia tomentosa* L., *Erihalis fruticosa* L., and the vines *Croton lucidus* L., *Smilax beyrichii* Kunth, and *Jacquemontia jamaicensis* (Jacq.) Hall. *Helicteres spiralis* Northrop was also found here for the first time since leaving New Providence.

Along the side of the road, at the top of the ridge, was a good deal of a little mint, *Scutellaria longiflora* Small, that has just been described by Dr. Small from south Florida. It, of course, had not before been reported from the Bahamas, and is now known only from south Florida and from this point.

#### TARPUM BAY, ELEUTHERA.

Extending back from the town for several miles is a flat, rocky plain, which is bounded on the west by a range of hills. This plain was extremely dry at the time we were there, but the vegetation showed little signs of suffering from lack of water. We found here a number of plants not before seen, among them being *Cardiospermum helicacabium* L., *Teucrium cubense* L., and *Cassia aspera* Mich. The principal trees and scrubs that formed the rather low coppice of the flat plain were *Eugenia confusa* DC., *Acacia chorio-phylla* Benth., *Croton lucidus* L., *Fagara fagara* (L.) Small, *Lantana involucrata* L., *Pithecolobium keyense* Britton, *Tecoma bahamense* Northrop, *Crochorus hirsutus* L., *Torrubia cokeri* Britton, *Coccolobis laurifolia* Jacq., *Bourreria havanensis* (L.) Miers, and *Phyllanthus epiphyllanthus* L. The following were less abundant: *Bursera simaruba* (L.) Sarg., *Ichthyomethia piscipula* (L.) Hitch., *Metopium metopium* (L.) Small, and the plants mentioned above as here first collected. The principal vines were *Jacquemontia jamaicensis* (Jacq.) Hall, *Parthenocissus quinquefolia* (L.) Planch., and a species of *Sorjania*. *Bryophyllum pinnatum* (Lam.) S. Kurz (Live-forever) was very abundant and from its fallen leaves were growing a number of young plants.

The banana-holes that occurred here and there in the rocky plain showed a type of vegetation in every respect different from the ordinary level. The contrast was about as marked as if a tub of waterlilies were set among a bed

of *Agaves*. In one such banana-hole, about 30 feet across, grew *Anona palus-tris* L. (Custard-apple), *Ficus sapotifolia* Kunth & Benche, *Picramnia pen-tandra* Sw. (Snake root), here 15 feet in height *Psychotria undata* Jacq. and *Cladium effusum* Torr. Attached to the sides of the depression, beneath its overhanging edges, flourished *Adiantum melanolicum* Willd., *Odontosoria clavata* Sw., and other ferns.

#### POWELLS POINT, ELEUTHERA.

The beach at this point is sandy, with rocks projecting at intervals. Behind the beach is a slightly elevated, sandy plain, which extends for about 100 yards and is then interrupted by an extensive mangrove marsh. At one end of this marsh, where the water is shallow, there was a dense, almost pure growth of *Eleocharis cellulosa* Torr., which occupies an area of about 100 by 50 yards and is unbroken except for occasional clumps of mangrove. This was the first time we had noticed this sedge, but it was found again in a similar situation at Arthurs Town, Cat Island. On the hills behind the swamp mahogany and mastic were conspicuous.

In the sandy plain, above mentioned, grew a number of small specimens of the *Cyclospathe northropi* Cook (Hog-cabbage palm), here first seen. Along the shore, just behind the usual beach plants, was a dense thicket, the outer face of which was sheared by the wind into a slope leading from the ground to a height of about 6 feet. The most noticeable peculiarity of this coppice was the grouping of its different plants into almost pure association, which followed each other not from without inward, but along the beach. A pure growth of *Reynosia septentrionalis* Urban (Darling plum) would be succeeded by an equally pure growth of *Pithecolobium keyense* Britton (Ram's horn); this by *Acacia choriophylla* Benth. (Cinnecord), and this by *Eugenia buxifolia* (Sw.) Willd. The area occupied by each was sometimes as much as 20 feet. This was the only place in the Bahama Islands where we found coppice plants of a single species forming clumps of any extent uninterrupted by other forms. In fact, the mixed character of tropical vegetation and the almost entire absence of extensive bodies of single species, is one of the most striking and remarkable differences that it presents to our temperate growth. The conspicuousness of this characteristic is well shown by the giving of the name "Family Wood" to *Coccobolis krugii* Lindau in Watlings Island because it occasionally forms small areas without admixture with other plants. As one passes through a typical Bahama coppice, different plants are met with at every

step. The variety seems interminable and on first acquaintance one is appalled with the difficulty of becoming acquainted with them.

#### ARTHURS TOWN, CAT ISLAND.

The general configuration of the land is similar to that at Tarpum Bay, and a wide, flat plain stretches inward from the western side. About 1 mile from the shore there are a series of small fresh-water pools, where we found many things to interest us. *Utricularia* was here first seen on the Islands, as was also the beautiful waterlily, *Castalia ampla* (DC.) Green, not before reported from the Bahamas, which dotted the water with pure white flowers. Along the edges of the pools grew the two attractive little plants *Spigelia anthelmia* L. and *Sabbatia campanulata* (L.) Britton, with *Centella repanda* (Pers.) Small, a species of *Polygonum*, and several of the *Onagraceæ*. None of these plants is often met with in the Bahamas, as they indicate fresh water, and fresh water is exceedingly hard to find in these Islands. *Myrica cerifera* L. and *Inodes palmetto* (Walt.) Cook (Thatch palm), which are also fond of fresh water, were not uncommon here.

The rocky plain was covered with about the same sort of growth as that described from Tarpum Bay. Here we saw the scrub *Bonamia cubana* A. Rich., a remarkable member of the *Euphorbiaceæ*, not before reported out of Cuba. A large specimen of *Ficus brevifolia* Nutt., 40 feet in height, was passed near the town; from its trunk and branches hung great quantities of small and matted aerial roots.

In a long, brackish marsh a few hundred feet behind the beach was a fine association of *Typha domingensis* Pers. and the sedge *Eleocharis cellulosa* Torr. mentioned from Powells Point. Except at this place, *Typha* was seen only on New Providence, where it is abundant at Lake Killarney.

*Epiphytes* were rather common in the coppice cover of the rocky plain. *Tillandsia utriculata* L. with flower stalks about three feet high was most conspicuous. One thatch palm was particularly attractive with its covering of ferns and yellow orchids.

#### PORTE NELSON, RUM CAY.

The town is situated on a sandy level which passing westward into a low, damp flat, finally sinks into a mangrove marsh. Near the shore were vigorous specimens of *Mimusops sieberi* A. DC. (Wild sapodilla), 20 feet high, the largest that we met with. Here also grew a number of mahogany trees, 25 feet

in height. The sandy plain just mentioned is covered with *Chloris barbata* Nash., *Setaria glauca* (L.) Scribn., *Ipomoea pes-caprae* Sw., *Canavalia obtusifolia* (Lam.) DC., *Cassia bahamensis* Mill., *Baccharis dioica* Vahl., *Torrubia longifolia* (Heimerl) Britton, *Pluchea odorata* (L.) Cass., *Bumelia loranthifolia* (Pierre) Britton (here called Wild resin), *Melochia tomentosa* L., and *Bourreria havanensis* (L.) Miers; with the vines *Rhabdadenia biflora* (Jacq.) Mill. and *Urechites andrewsii* (Chapm.) Small. *Colubrina colubrina* (L.) Small (Wild coffee), not before seen except on Green Cay, was also rather abundant. It formed a spreading tree, about 12 feet high, that gave a dense shade. Here also we first met with the *Opuntia triacantha* DC. (Dildo cactus), with small purple flowers and very sharp spines. *Opuntia tuna* Mill., with yellow flowers, was also scattered about. These *Opuntias* and the *Colubrina* extended to the top of the ridge which ran along southern-eastern shore. On the top of this ridge, among the hard, smooth rocks, we found *Gossypium barbadense* L. (Cotton) growing wild. Its bolls had opened and the white lint was produced in abundance. Here on top and down the eastern slope grew *Agave rigidula* Mill., *Plumiera obtusa* L., *Metopium metopium* (L.) Small (Poison-wood), and *Guaiacum sanctum* L. (Lignum vitæ), all of low, stunted habit. Here we first found *Guettardia scabra* Vent. In addition to these there were, of course, the plants more ordinarily found in such situations, such as *Bumelia loranthifolia* (Pierre) Britton (Milk plum), *Reynosia septentrionalis* Urban (Darling plum), and *Bumelia microphylla* Griseb. (Ink-berry). This ridge extends in a semicircle, enclosing to the eastward a flat plain that seemed to have been cultivated in part. The vegetation of the enclosed plain was of a distinctly different type from that on the ridge. There was little shrubbery, but weeds and grasses were abundant. *Bidens leucantha* Willd., *Abena jamaicensis* (L.) Hitch., *Leptilon canadense* (L.) Britton, *Phyllanthus niruri* L., *Turnera ulmifolia* L., *Chloris petrea* Desv., *Cenchrus tribuloides* L., *Evolvulus arbusculus* Poir., *Sida carpinifolia* L., and *Salmea petrobioides* Griseb. were all abundant. The principal scrubs were *Lantana crocea* Jacq., *Lantana involucrata* L., *Cassia bahamensis* Mill., *Melochia tomentosa* L., *Baccharis dioica* Vahl., *Corchorus hirsutus* L., and *Pithecolobium keyense* Britton.

Behind the hills on the northeast side of the cay is a large salt-water pond whose immediate margins are clothed with a dense jungle of *Rhizophora mangle* L., which varies from a few feet to many feet in width. Behind this is a slightly less dense association of *Conocarpus*, *Laguncularia* and *Avicennia*. Growing among them we found, to our amazement, the *Calonyction bona-nox*

(L.) Small (Moon flower) of our gardens. Within this association are open places of various sizes where the ground is composed of soft, white mud that is so extremely salt and barren as to be in some places entirely devoid of vegetation. *Avicennia*, low and depauperate, extends farthest into these mud flats. The individual plants are widely scattered, but their aerial roots project thickly out of the ground. Among them, but extending not quite so far in, grows the grass *Sporobolus virginicus* Kunth, which next to the *Avicennia* is probably the most salt-resisting plant in the Bahamas. *Salicornia ambigua* Michx. is in many places mixed with the grass, or either may occur in pure association. *Sesuvium portulacastrum* L. is often found among the *Salicornia*, or just behind it. This flat marsh rises very gradually towards the west and as conditions become a little less hard, *Baccharis dioica* Vahl. makes its appearance and soon gets to be abundant. Next appears the *Dodonaea viscosa* L. (Candlewood), with its winged pods; then *Pithecellobium keyense* Britton (Ram's horn), *Torrubia longifolia* (Heimerl) Britton (Blolly), and *Reynosia septentrionalis* Urban (Darling plum). About the point where the latter appear, the flat plain that we have previously described begins.

Fine specimens of the hog-cabbage palm are said to grow on the northern edge of the island, but as we were ashore but a few hours we had no time to look for it.

#### WATLINGS ISLAND.

Beginning with the beach, we shall describe the vegetation met with as one passes directly eastward from Cockburn Town across the island until the second large lake about 6 miles inward is reached. Further than this we did not go. For the sake of convenience the plants will be described under the different formations and associations that were included in this range.

Beginning then with the beach on the western side, we have first:

**THE SAND-STRAND FORMATION.**—This may be divided here into four plant associations, as follows:

1. *Tournefortia-Suriana Association*.—This occupies the rocky or sandy ledge that runs along the beach at high-tide mark. The rock here is not hard, but soft and generally covered with sand. The association is but a few feet wide and, beside *Tournefortia* and *Suriana*, contains scarcely any other plants, except a little trailing *Ambrosia hispida* Pursh. Behind this ledge there is a sandy flat of about 20 feet in width which is covered by the following:

2. *Distichlis-Ambrosia Association*.—The two plants, *Distichlis maritima*

*Raf.* and *Ambrosia hispida* Pursh, form almost the entire covering of this area. There is very little shrubbery, but in some places the peculiar beach form of *Erythalis fruticosa* L. (Black torch) spreads its procumbent branches on the ground.

3. *The Cocoa-plum Association*.—This occupies the rounded sandy elevation immediately behind the flat area of the above. It is about 25 feet wide and is composed almost entirely of the two species of *Chrysobalanus fellocarpus* Meyer (Cocoa plum) and *Chrysobalanus icaco* L., which for long distances may be entirely pure. Scattered individuals of *Coccolobis uvifera* (L.) Jacq., *Ilex krugiana* Loes., *Ernodea littoralis* Sw., *Genipa clusiæfolia* (Jacq.) Griseb., *Metopium metopium* (L.) Small (Poison-wood), *Reynosia septentrionalis* Urban (Darling plum), and *Eugenia confusa* DC. (Stopper) appear in this association, but they do not form a conspicuous part of the covering. On the landward slope of this elevation the next association appears.

4. *Inodes-Lantana Association*.—The *Inodes palmetto* (Walt.) Cook (Thatch palms) here form a very distinct line that may be seen in Plate XLIII, Fig. 1. They are 20 to 25 feet high, and extend somewhat into the next formation. Among them grow *Lantanas*, *Phyllanthus epiphyllanthus* L., *Chloris petræa* Desv., *Cenchrus tribuloides* L., and a little of the half-prostrate *Dalbergia ecastrophylum* (L.) Taub.

FRESH-MARSH FORMATION.—At the foot of the sand slope there is a long, narrow fresh marsh, generally not over 20 or 30 feet in width. In places there is standing water, but often the soil is merely damp. The palms extend into this formation only in dry places, and not abundantly. In the deeper pools grows *Typha domingensis* Pers., while in shallower water and on the wet margins are dense, pure associations of *Eleocharis cellulosa* Torr. The delicate little trailing *Monnieria monnieria* (L.) Britton also occurs around the water, where it is often mixed with *Lithophila vermicularis* (L.) Uline. Scattered here and there in this formation was a tall grass 8 or 10 feet high, which, not being in flower, we have not been able to identify. At one place in the marsh to the north of the town we found a black-fruited *Chrysobalanus fellocarpus* Meyer (Cocoa plum), 25 feet high and 14 inches in diameter—a size most unusual for this species.

CONOCARPUS-FLAT FORMATION.—This extends backward from the marsh for several hundred yards. The ground is of honeycomb rock with water in the depressions, and is covered with an almost pure association of *Conocarpus erecta sericea* Fors. This wet area slowly rises into a long, gentle slope, which

culminates about three-quarters of a mile from the town and then gently slopes again to another *Conocarpus*-flat behind the western lake.

**LOW-COPPIE FORMATION.**—This covers the elevation just mentioned, which follows the *Conocarpus*-flat. The growth, which is not often more than 8 or 10 feet high, is composed principally of the following species: *Croton lucidus* L., *Amyris elemifera* L. (White torch), *Calliandra haematomma* Benth., *Erithalis fruticosa* L. (Black torch), *Bourreria havanensis* (L.) Miers (Strong-back), *Coccolobis laurifolia* Jacq. (Pigeon plum), *Rapania guyanensis* Aubl. (Beef-wood), *Reynosia septentrionalis* Urban (Darling plum), *Bumelia microphylla* Griseb. (Ink-berry), *Mimusops sieberi* A. DC. (Wild sapodilla), *Metopium metopium* (L.) Small (Poison-wood), *Chytraculia pallens* (Griseb.) Britton (Spice-wood), *Coccolobis krugii* Lindau (Family-wood), *Philanthus myrtilloides* Griseb. (Boar black torch), *Exostemma caribaeum* (Jacq.) R. & S. (Prince-wood), *Buxus bahamensis* Baker (Crispy-wood), *Eugenia confusa* DC. (Stopper), *Ilex krugiana* Loes, *Eugenia buxifolia* (Sw.) Willd. (White head), *Maytenus buxifolia* (Rich.) Griseb., *Byrsinima lucida* (Sw.) DC. (Sweet marge), and *Gymnanthes lucida* Sw. This formation passes eastward into the low, rocky marsh described below.

**CONOCARPUS-MANGROVE FORMATION.**—Here the growth is not dense and is generally about 8 feet high. Except near the lake shore, the growth is pure *Conocarpus*, but on the water's edge is a dense fringe of *Rhizophora mangle* L. At certain places behind this mangrove, *Avicennia nitida* Jacq. reaches a size not approached at any other point visited. It is 50 feet high and 2 feet in diameter at base. Beneath these trees the soil is a soft, black mud, through which innumerable aerial roots protrude. On sandy margins of the lake we found for the first time the *Hippomane mancinella* L. (Manchineel) of evil repute. Here also was *Batis maritima* L., a low, succulent plant growing in scattered clumps, and *Lithophylla vermicularis* (L.) Uline.

The water of the lake was very clear and in most places not over 4 or 5 feet deep. *Acetabularia* grew in the greatest abundance on its rocky floor, and *Ruppia maritima* L. was also plentiful. The water here is as salt as that of the sea, with which it no doubt has underground connection, as it rises and falls with the tides.

**HIGH-COPPIE FORMATION.**—This small lake connects by a narrow channel with a larger lake east of it from which it is separated at most places by a sharp ridge. On this elevation was a coppice growth of larger size than any so far described for the island. Here grow fine spreading specimens of

*Guaiacum sanctum* L. (Lignum vitae), 18 feet high; also a species of fig, *Metopium metopium* (L.) Small (Poison-wood), *Gymnanthes lucida* Sw. (Crab-wood), *Bourreria havanensis* (L.) Miers (Strong-back), *Coccolobis laurifolia* Jacq. (Pigeon plum), *Ichthyomethia piscipula* (L.) Hitch. (Dog-wood), *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Acacia choriophylla* Benth., *Tecoma bahamensis* Northrop, *Thouinia discolor* Griseb., *Citharexylum quadrangulare* Jacq., *Chiococca parvifolia* Willd., *Bumelia microphylla* Griseb. (Ink-berry), *Lantana*, *Cajanus cajan* (L.) Millsp., with the vines *Smilax beyrichii* Kunth, and *Serjania subdentata* (Juss.) Poir. Here also grew *Thrinax bahamensis* Cook (Goat palm) in more or less abundance. On a small cay in the large central lake was a magnificent grove of *Rhizophora mangle* L., which reached a height of 30 feet. In its branches the black cormorants were building in great number.

The large central lake is bounded on the west by another high and broader ridge. Its covering is very much like that of the other ridge just described. The columnar *Pilocereus lanuginosa* Rumpl. occurred here, as did also *Opuntia tuna* Mill. From the western base of this ridge there extends another rocky Conocarpus-flat like that already described, which is bounded eastward by a third salt lake. In the Conocarpus-flat, near the lake, was growing a good deal of *Vanilla articulata* Northrop, climbing up into the *Conocarpus*. On the sandy shore grew manchineel again, with the goat palm and *Conocarpus*.

About one-half mile north of Cockburn Town there are along the beach some low sand dunes where *Coccothrinax jucunda* Sarg. (Silver palm) is abundant. The gentle, landward slope of these dunes supports a low, scrubby growth of such typical sand-growing plants as *Solanum bahamense* L., *Turnera ulmifolia* L. (here called "Buttercup"), *Pluchea fætida* (L.) B. S. P., *Baccharis dioica* Vahl., *Petitia paepigii* Schan., *Ernodea littoralis* Sw., *Genipa clusiifolia* (Jacq.) Griseb., *Phyllanthus epiphyllanthus* L. (Hard-head), *Pithecellobium keyense* Britton (Ram's horn), *Cassia* species, *Eugenia confusa* DC. (Stopper), with the vines *Rhabdadenia biflora* (Jacq.) Mill., *Urechites andrewsii* (Chapm.) Small, *Smilax beyrichii* Kunth, *Jacquemontia jamaicensis* (Jacq.) Hall, species of *Passiflora*, and the trailing, parasitic *Cassytha*. *Chloris petræa* Desv., *Setaria glauca* (L.) Scribn., and *Cenchrus tribuloides* L. were the principal grasses here. As this slope approaches the fresh-water marsh, there appeared distinct associations, almost pure, in series as follows: (1) *Pluchea odorata* (L.) Cass.; (2) *Lippia* species; (3) *Cladium effusum*

Torr.; (4) *Inodes palmetto* (Walt.) Cook; then comes the narrow fresh-water marsh, followed by the *Conocarpus*-flats already described. A little further north from this point the fringe of *Cladium effusum* Torr. widens out into a beautiful flat about one-half mile wide, where the *Cladium* grows thickly and in pure association.

#### CLARENCE HARBOR, LONG ISLAND.

At this point we found much to interest us. Two ranges of hills begin here and extend northwestward, one about a mile from the north shore, the other close to the south shore. Between them is a rocky plain about 2 miles wide which, behind the town, extends uninterruptedly across the island. On this plain the conditions are extremely xerophytic, but most so in the part lying nearest the settlement. Here were growing considerable thickets of *Fagara fagara* (L.) Small (Wild lime) and *Catesbea spinosa* L., reminding one in their appearance of the thickets of Chickasaw plum, common around settlements in the southern United States. The *Catesbea* was here seen for the second time. It was heavily loaded with fruit and showed but few flowers. Other abundant plants in this area were *Bumelia microphylla* Griseb., *Croton linearis* Jacq., *Cordia bahamensis* Urban, *Cordia globosa* (L.) H. B. K. (here first met with), *Melochia tomentosa* L., *Cordia cylindrostachya* R. & P., *Bourreria havanensis* (L.) Miers, *Torrubia longifolia* (Heimerl) Britton, with the smaller herbaceous plants, *Heliotropium parviflorum* L., *Sida carpinifolia* L., *Bidens leucantha* Willd., and *Chloris barbata* Nash. On the north slope of the line of hills nearest the town, the conditions are also extremely xerophytic. Here was a low growth resembling somewhat that found at Gregory Town, Eleuthera, but not so regular and low. The constituents of this scrub were, however, not the same as at Gregory Town. The most abundant plants were *Lantana involucrata* L., *Erithalis fruticosa* L., *Pithecolobium keyense* Britton, *Cajanus cajan* (L.) Millsp., *Tecoma bahamensis* Northrop, *Psychotria undata* Jacq. (here a low scrub 2 feet and 6 inches high), *Reynosia septentrionalis* Urban, *Eugenia confusa* DC., *Eugenia buxifolia* (Sw.) Willd., *Tetrazygia bicolor* (Mill.) Cogn., *Croton longifolia*, *Phyllanthus epiphyllanthus* L., with the vines *Smilax beyrichii* Kunth, *Jacquemontia jamaicensis* (Jacq.) Hall, and *Stigmatophyllum sagrænum* Juss. Growing on the ground, on this hillside, we found the rare fungus, *Diplocystis wrightii* B. & C., a member of the *Lycoperdineæ*. Near the top of the hill were fine specimens of *Pilocereus lanuginosa* Rumpl., mentioned above from Current Town, Eleuthera, and Watlings Island.

Passing northward from the town along the coast and then turning to the left and ascending the hill, we came to an old field covered with an extremely dense growth of *Leucæna glauca* (L.) Benth. (Jumby bean) and *Cajanus cajan* (L.) Millsp. (Stinking pea) in almost pure association. The tops of the plants, which were about 7 feet and 6 inches high, formed an almost level floor. On the top of the ridge beyond this field there is a rather high coppice composed largely of different species from those so far mentioned from this point. The most abundant constituents of the higher growth were *Lysiloma bahamensis* Benth. (Wild tamarind), *Rapania guyanensis* Aubl. (Beef-wood), *Guaiacum sanctum* L. (Lignum vitæ), *Krugiodendron ferreum* (Vahl.) Urban (Iron-wood), *Erythroxylon brevipes* DC. (Sareto), *Tetrazygia bicolor* (Mill.) Cogn. (Wild guava), *Tecoma bahamensis* Northrop, *Cæsalpinia vesicaria* L. (Braziletto), *Fagara flava* (Vahl.) Kr. & Urb. (Yellow-wood), *Reynosia septentrionalis* Urban, *Amyris elemifera* L. (White torch), *Gymnanthes lucida* Sw. (Crab-wood), *Maytenus buxifolia* (Rich.) Griseb. (Spoon-wood), *Hypelate trifoliata* Sw. (Red-wood), *Exostemma caribæum* (Jacq.) R. & S. (Princee-wood), *Torrubia longifolia* (Heimerl) Britton (Blolly), and *Bursera simaruba* (L.) Sarg. (Gum-elemi). The height of these trees is about 15 to 20 feet. In nearly all cases the bark of the trunks was white from crustaceous lichens. In fact, it was hard to find a square inch of bark that was not covered with these lichens. The trunk of the gum-elemi is an exception. Its habit of defoliating its bark in thin, papery sheets prevents the lichens from securing a foothold. As a consequence, its red trunks show in sharp contrast among the white ones of its neighbors. The wild guava is peculiar in having white bark that is natural and not due to a covering of lichens. This is true also, by the way, of *Jacquinia keyensis* Mez (Joe-bush), and to a less extent of *Coccolobis laurifolia* Jacq. (Pigeon plum). The undergrowth of the above coppice consists principally of *Fagara fagara* (L.) Small (Wild lime), *Catesbeæ spinosa* L., *Fagara coriacea* (A. Rich.) Kr. & Urb. (Doctor's club), *Bumelia microphylla* Griseb., *Bunchosia glendulosa* Rich., *Erithalis fruticosa* L. (Black torch), *Chiococca parvifolia* Wullschl., *Cordia bahamensis* Urban, *Phyllanthus epiphyllanthus* L. (Hard-head), and *Croton longifolia*. The vines *Triopteris rigida* Sw., *Smilax beyrichii* Kunth, and *Jacquemontia jamaicensis* (Jacq.) Hall were also abundant.

It will be observed that the growth in this coppice differs from any that have been before described. It possesses, on the one hand, the character of the low xerophytic condition, and on the other, the peculiarities of what we

have called the high coppice where moisture is more plentiful. It may perhaps be explained from the dry conditions being here modified by an unusually productive soil, for the soil is of red loam, which is the most fertile on the Islands.

On the opposite side of the island from the town we found several hog-cabbage palms growing in a thick coppice of *Reynosia septentrionalis* Urban (Darling plum). This was the third time we had seen the hog-cabbage palm, and nowhere was it large.

#### WHICH POINT, ABACO.

The shore at this point was rocky and sandy. In addition to the usual beach plants, such as *Suriana maritima* L., *Salmea petroboides* Griseb., *Tournefortia gnaphalodes* (Jacq.) R. Br., *Uniola paniculata* L., *Iva imbricata* Walt., *Distichlis maritima* Raf., *Cenchrus tribuloides* L., *Ambrosia hispida* Pursh, *Hymenocallis arenicola* Northrop, and *Ipomoea pes-caprae* L., etc., we found here for the second time the new *Euphorbia* with whitish leaves (*Euphorbia cayensis* Millsp.), first collected from Rum Cay. On the low, narrow sand ridge just back of the beach grew an abundance of *Dodonera viscosa* L., mentioned above from Rum Cay, and a little *Ichthyomethia piscipula* (L.) Hitch. (Dog-wood), neither of which had before been seen in such a situation. In addition to these, the principal plants of this elevation were *Cassia choriophylla* (Cinnecord), *Ernodea littoralis* Sw., *Bourreria havanensis* (L.) Miers (Strong-back), *Jacquinia keyensis* Mez (Joe-wood), *Erithalis fruticosa* L. (Black torch), *Bumelia loranthifolia* (Pierre) Britton (Milk plum), *Genipa clusiæfolia* (Jacq.) Griseb., *Tetrazygia bicolor* (Mill.) Cogn., *Torrubia longifolia* (Heimerl) Britton, *Swietenia mahogani* L. (Mahogany), *Fagara coriacea* (Yellow-wood), and *Cassytha filiformis* L. *Juniperus barbadensis* L. (Cedar) was not seen here, but occurred sparingly farther inland. Behind the beach was a *Conocarpus*-flat of the usual character, and this was followed by the extensive pine-barrens, which occupy a large part of the island. The ground in these barrens was covered with a dense, tangled growth of *Pteridium cicutarium* (L.) Kuhn (Maypole fern) from 4 to 6 feet high. This growth we found more difficult to penetrate than any we had met with. Our progress could hardly be called walking, and it took us about an hour to pass a half mile into it. This extraordinarily dense growth of fern was no doubt partly to be accounted for by the repeated burnings to which the forest had been subjected in order to facilitate the hunting of wild hogs. Plate XXXVII, Fig. 2,

gives an idea of the conditions here. Among the pines the following scrubs or trees were observed: *Tetrazygia bicolor* (Mill.) Cogn. (Wild guava), *Cordia bahamensis* Urban, *Ichthyomethia piscipula* (L.) Hitch. (Dogwood), *Bursera simaruba* (L.) Sarg. (Gum-elemi), *Metopium metopium* (L.) Small (Poison-wood), *Swietenia mahogani* L. (Mahogany), *Tecoma bahamensis* Northrop, *Bumelia microphylla* Griseb. (Ink-berry), *Acacia choriophylla* Benth. (Cinne-cord), *Anthacanthus acicularis* Nees., *Duranta repens* L. (Bitter-sweet), *Ernodea littoralis* Sw., *Myrica cerifera* L., *Willughbæya heterophylla* Small, *Rajania hastata* Kunth, *Byrsonima lucida* (Sw.) DC. (Sweet margaret), *Erythroxylon brevipes* DC. (Saretto), *Morinda roioc* L., *Hypelate trifoliata* Sw. (Red-wood), *Bourreria havanensis* (L.) Miers. (Strong-back), *Exothea paniculata* (Juss.) Radlk. (Butter-bough), *Vernonia bahamensis* Griseb., *Gymnanthes lucida* Sw. (Crab-wood), *Eugenia buxifolia* (Sw.) Willd., *Erithalis fruticosa* L. (Black torch), *Rapania guyanensis* Aubl. (Beef-wood), and *Coccolobis laurifolia* Jacq. (Pigeon plum). Beneath the ferns was found the new species of *Ernodea* (*Ernodea cokeri* Britton), with much more delicate leaves than the common *Ernodea littoralis* Sw. Here also was found *Galium hispidulum* Mich., first collected from the Bahama Islands.

At certain places the *Conocarpus*-flat was bordered with an association of *Aster tenuifolius* L. and *Distichlis maritima* Raf., mixed in places with a little *Salicornia ambigua* Michx., resembling, with the exception of the *Salicornia*, the association already mentioned on the border of a brackish pond in New Providence. In the coppice behind this association grew *Swietenia mahogani* L. (Mahogany), *Bumelia loranthifolia* (Pierre) Britton (Milk plum), and a little, scattered *Juniperus barbadensis* L. The milk plum was here the highest seen, reaching 12 feet, with a diameter of 9 inches. *Epidendrum fucatum* Lindl. (Yellow orchid) and *Phorodendron spathulifolium* Kr. & Urb. were abundant on the trees, the mistletoe showing its usual preference for mahogany.

#### LIST OF PLANTS COLLECTED.

\* Names preceded by an asterisk indicate that the species was collected for the first time in the Bahamas by the Botanical corps of the Bahama Expedition.

#### MYXOMYCETES.<sup>12</sup>

\**Physarum compressum* A. & S. Dr. Farlow says: "This specimen is interesting as being a form of the species noted in the tropics by Lister, but although not quite the northern form, still not specifically distinct."

\**Physarum globuliferum* (Bull.) Pers.

<sup>12</sup> Determined by Dr. W. G. Farlow. All collected at Mangrove Cay, Andros.

- \**Physarum viride* Pers.
- \**Didymium squamulosum* (A. & S.) Fr. (*D. effusum* Link).
- \**Dictyodium cancellatum* (Batsch.) Macbride (*D. umbilicatum* Schrad.). A widely distributed species.
- \**Arcyria punicea* Pers.
- \**Arcyria arstedtii* Rostf. (?). Dr. Farlow remarks of the above that "it answers to descriptions of *Arcyria arstedtii* Rostf. in most respects, but the capillitium is not the same as in specimens of that species. It may be new."
- \**Arcyria cinerea* (Ball.) Pers. (*A. albida* Pers.).
- \**Hemitrichia clavata* (Pers.) Rostf.
- \**Lycogala epidendron* (L.) Fr.
- \**Stemonitis herbarica*. Dr. Farlow says of this: "It resembles in some respects *S. herbarica* Peck. and also *S. smithei* Macbr., but as far as can be told from the specimens, the spores have not the ferruginous color of the latter species."

## ALGÆ.†

SCHIZOPHYCEÆ.<sup>14</sup>

- Gleocapsa* sp. On damp rocks, Mt. Vernon, Nassau.
- Nostoc commune* Vauch. On bare rocks, Mt. Vernon, Nassau. Cosmopolitan.
- Scytonema* sp. Lichenised. On bare rocks, Mt. Vernon, Nassau.
- Calothrix arruginea* Bornet. On floating Sargassum, Atlantic Ocean off South Carolina. Cosmopolitan.
- Lyngbya majuscula* (Dillw.) Harv. Eleuthera opposite Current Settlement. Cosmopolitan. Determined by Dr. M. A. Howe.

## CONJUGATÆ.

- Spirogyra rivularis* var. *minor* Hansg. In a rock hole, Killarney barrens, New Providence; Europe. Determined by Mr. F. S. Collins.

## CONFERVALES.

- Trentepolia aurea* (L.) Mart. On trees and rocks, Soldiers road, Nassau. Determined by Dr. M. A. Howe.
- Rhizoclonium riparium* var. *implexum* (Dillw.) Rosenw. In a brackish pool, Mt. Vernon, Nassau. Exposed at low tide. Cosmopolitan. Determined by Mr. F. S. Collins.

SIPHONEÆ.<sup>15</sup>

- Bryopsis plumosa* (Huds.) Ag. Rocks, west shore of Eleuthera, opposite Current Settlement.
- Caulerpa racemosa uvifera* (Turn.) J. Ag. West shore of Eleuthera, Current Settlement.
- Caulerpa cupressoides ericifolia* (Turn.) Web.-v. Bosse. Little Mangrove Cay, Andros.
- Caulerpa paspaloides* (Bory) Grev. Green Cay. Dredged in 4 fathoms.
- \**Caulerpa compressa* (Web.-v. Bosse) Howe. Clarence Harbor, Long Island. In 4 feet of water. This species has been described from our material by Dr. M. A. Howe in Bull. Torr. Bot. Club, Vol. XXXI, 1904, pp. 93-94.
- Aurainvillia longicaulis* (Kuetz.) Marr. & Bood.

<sup>14</sup> Determined, except the last, by Mr. F. S. Collins.

<sup>15</sup> Determined by Dr. M. A. Howe.

† It is not known exactly how many Algae are new to the Bahamas.

*Aurainvillia nigricans* Dcne. West shore of Eleuthera, opposite Current Settlement.

*Penicilllus capitatus* Lamarck var. The typical form has a longer stalk and rounder head. Mangrove Cay, Andros.

\**Rhipocephalus phœnix* (Ell. & Soland.) Kuetz. Mangrove Cay, Andros. This species has been discussed by Dr. M. A. Howe in Bull. Torr. Bot. Club, Vol. XXXI, 1904, p. 94.

*Udotea conglomerata* (Ell. & Soland.) Lamour. Mangrove Cay, Andros; Green Cay. Dredged in 4 fathoms.

*Halimeda tridens* (Ell. & Soland.) Lamour. Mangrove Cay, Andros; Green Cay. Dredged in 4 fathoms.

*Halimeda tuna* (Ell. & Soland.) Lamour. West shore of Eleuthera, opposite Current Settlement.

*Codium tomentosum* (Huds.) Stackh. West shore of Eleuthera, Current Settlement.

*Valonia utricularis* Ag. West shore of Eleuthera, Current Settlement.

*Valonia ventricosa* J. Ag. On rocks, Eleuthera, opposite Current Settlement.

*Siphonocladus membranaceus* (Ag.) De Ton. var. Mangrove Cay, Andros.

*Chamædoris peniculum* (Ell. & Soland.) Kuntze. Gregory Town, Eleuthera.

*Dictyosphaeria favulosa* (Ag.) Decne. Mangrove Cay, Andros; Green Cay. Dredged in 4 fathoms.

*Microdictyon crassum* J. Ag. Green Cay. In 4 fathoms of water. This species has been discussed by Dr. M. A. Howe in Bull. Torr. Bot. Club, Vol. XXXI, 1904, p. 94.

*Anadyomene stellata* (Wulf.) Ag. Mangrove Cay, Andros.

*Acetabulum crenulatum* (Lamour.) Kuntze. Green Cay; dredged in 4 fathoms.

*Coccocladus occidentalis* (Harv.) Cramer. Mangrove Cay, Andros; Green Cay. Dredged in 4 fathoms.

\**Coccocladus occidentalis laxus* Howe. Big Pond, Nassau. In small sink-holes. This variety was described by Dr. M. A. Howe in Bull. Torr. Bot. Club, Vol. XXXI, 1904, p. 95, pl. 6.

\**Neomeris cokeri* Howe. Opposite Current Settlement, Eleuthera. This species was described from our material by Dr. M. A. Howe in Bull. Torr. Bot. Club, Vol. XXXI, 1904, p. 97, pl. 6.

#### CHARACEÆ. †

*Chara foliolosa zeylanica* Klein. Fresh marsh, Arthurs Town, Cat Island. Determined by Mr. C. B. Robinson.

*Chara foliolosa* Muhl. (*Chara gymnopus* A. Br. forma *Humboldtii* A. Br.). In a slightly brackish pool, Mt. Vernon, Nassau. Determined by Mr. C. B. Robinson.

#### PHÆOPHYCEÆ.<sup>16</sup>

*Cystoseira myrica* (Gmel.) Ag. Gregory Town, Eleuthera.

*Turbinaria turbinata* (L.) Kuntze. Spanish Wells, George Island.

*Sargassum bacciferum* (Turn.) Ag. Atlantic Ocean, south of Gulf Stream.

*Sargassum pteropleuron* Grun. Taken in the Atlantic Ocean off Hatteras, and again south of Gulf Stream.

*Sargassum filipendula* Ag. forma *laxum* J. Ag. Atlantic Ocean, south of Gulf Stream.

<sup>16</sup> Determined by Dr. M. A. Howe.

† Determined by Mr. C. B. Robinson.

*Sargassum bacciferum* (Turn.) Ag. Atlantic Ocean, south of Gulf Stream.

*Sargassum* sp. (?) Immature and sterile. West shore of Eleuthera, Current Settlement.

#### DICTYOTALES.<sup>17</sup>

*Gymnosorus variegatus* (Lamour.) J. Ag. (*Zonaria variegata* Lamour). Green Cay; on floating *Sargassum* off Hatteras.

*Padina durevilliae* Bory. On rocks, Eleuthera, opposite Current Settlement.

*Neurocarpus justii* (Lamour.) Kuntze. Thrown up on the beach at Hope Town, Abaco.

*Dictyota dentata* Lamour. Gregory Town, Eleuthera.

*Dictyota bartayresiana* Lamour. On rocks, Eleuthera, opposite Current Settlement.

*Dictyota fasciola* (Roth) Lamour. Gregory Town, Eleuthera.

#### RHODOPHYCEÆ.<sup>18</sup>

*Liagora annulata* J. Ag. Gregory Town, Eleuthera. Somewhat resembling *Liagora valida* in habit, but clearly distinct—firmer, beautifully annulate from near the base to the partially calcified apices; the apices are rounded-obtuse in fluid-preserved material, but often become attenuate acuminate on drying. The annulations appear to be due to unequal calcification in well-defined alternating zones.

*Galazaura lapidescens* (Ell. & Soland.) Lamour. On rocks, west shore, Eleuthera. Current Settlement.

*Cordylecladia irregularis* Harv. West shore, Eleuthera, Current Settlement.

*Laurencia papillosa* (Forsk.) Grev. Gregory Town, Eleuthera.

*Laurencia tuberculosa gemmifera* (Harv.) J. Ag. Mangrove Cay, Andros; Green Cay; dredged in 4 fathoms.

*Chondria dasyphylla* (Woodw.) Ag. (?). Mangrove Cay, Andros.

*Chondria sedifolia* Harv. Mangrove Cay, Andros.

*Digenea simplex* (Wulf.) Ag. Gregory Town, Eleuthera.

*Bostrychia montagnei* Harv. Mt. Vernon, Nassau.

*Herposiphonia pecten-veneris* (Harv.) Falkenb.

*Amansia multifida* Lamour. Gregory Town, Eleuthera.

*Dasya gibbesii* Harv. Gregory Town, Eleuthera; Mangrove Cay, Andros.

*Spyridia filamentosa* (Wulf.) Harv.

*Ceramium byssoides* Harv. Mangrove Cay, Andros.

*Centroceras clavulatum* (Ag.) Mont. West shore, Eleuthera; on floating *Sargassum* in Gulf Stream, off North Carolina.

*Corallina subulata* Ell. & Soland. Attached to the above, Gregory Town, Eleuthera.

*Jania capillacea* Harv. On floating *Sargassum*, Atlantic Ocean, off North Carolina.

#### FUNGI.<sup>19</sup>

##### TREMELLINEÆ.

*Auricularia nigra* (Sw.) Burt. (*Hirneola nigra* (Sw.) Fr., *Peziza nigra* Sw.).

Near Nassau; Mangrove Cay, Andros.

<sup>17</sup> Determined by Dr. M. A. Howe.

<sup>18</sup> Determined by Dr. M. A. Howe.

<sup>19</sup> Determined by Dr. Geo. F. Atkinson.

## DACYROMYCETINEÆ.

\**Guepinia palmiceps* Berk. (?). On dead limbs, Soldiers road, New Providence. Widely distributed in tropical countries.

## HYMENOMYCETINEÆ.

\**Amanitopsis farinosa* Schw. In dry soil, Watlings Island, New Providence. Distribution: North Carolina, New York.

*Collybia* sp. (?). Near *C. lacerata*, but spores long, narrow, tapering at base, 9-12 x 3-5 mm. On rotting wood, Soldiers road, New Providence.

\**Lentinus strigosus* Fr. On dead stems of palms, Watlings Island, on decayed wood; Mt. Vernon, Nassau. Distribution: North Carolina, Ceylon, Cuba.

\**Marasmius bermudensis* Berk. (or near). Mt. Vernon, Nassau. Distribution: Bermudas.

\**Marasmius opacus* B. & C. (or near). On leaves, Soldiers road, Nassau. Distribution: North Carolina, Central America, New South Wales, Australia.

\**Marasmius nidulus* B. & C. (?). New Providence. Distribution: Cuba, Central America.

\**Marasmius ramealis* (Bull.) Fr. New Providence. Distribution: Europe, North America.

\**Marasmius rotula* (Scop.) Fr. Small form, on dead sticks, Mt. Vernon, Nassau. Widely distributed.

\**Marasmius vaillantii* Fr. (?). On banana leaves, Mangrove Cay, Andros. Distribution: England, South Carolina.

*Schizophyllum alneum* (L.) Schroet. New Providence. Cosmopolitan.

\**Favolus alutaceus* B. & Mont. Mangrove Cay, Andros. Distribution: Brazil, Maine, Malacca.

\**Polyporus occidentalis* Kl. (?). On dead trunks, Mangrove Cay, Andros; Little Mangrove Cay, Andros. Widely distributed.

*Polyporus* sp. (?). Young stage at base of trees, New Providence.

\**Polyporus guyanensis* Mont. Mangrove Cay, Andros. Distribution: Central America, Brazil.

\**Polystictus abietinus* Fr. On dead pine, Soldiers road, Nassau. Distribution: Europe, North America and Arctic regions.

\**Polystictus hirsutus* Fr. On dead wood, Grants Town, Nassau; Mangrove Cay, Andros. Cosmopolitan.

*Polystictus sanguineus* (L.) Mey. On dead limbs, New Providence. Widely distributed.

\**Trametes hydnoides* (Swartz.) Fr. New Providence. Widely distributed in tropical America.

## LYCOPERDINEÆ.

*Diplocystis wrightii* B. & C. On ground, dry hillside, Clarence Harbor, Long Island. Found on Inagua by Hitchcock and on Andros by Northrop. Reported only from the Bahamas and Cuba.

## PYRENOMYCETINEÆ.

*Xylaria* sp. Mangrove Cay, Andros (Sterile).

## LICHENES.\*

- \**Arthonia spectabilis* Flo. On bark, Spanish Wells, George Island (47).
- \**Arthonia cinnabrina* Wall. On leaf stalk of Palmetto, Arthurs Town, Cat Island (51).
- \**Buellia disciformis* Fr. On a tree, Mt. Vernon, Nassau (13).
- \**Cenogonium disjunctum* Nyl. On bark, Mt. Vernon, Nassau (29).
- \**Chiodescon sphærale* Nyl. On wood, Mangrove Cay, Andros (43).
- \**Graphis elegans* Ach. On trees, Mt. Vernon, Nassau, and Little Mangrove Cay, Andros (3, 42).
- \**Graphis achariana* Tuck. On mango tree, Mt. Vernon, Nassau (6).
- \**Graphis afzelii* Ach. On a tree, Mt. Vernon, Nassau (14).
- \**Graphis nitida* Nyl. On bark, Mt. Vernon, Nassau (21).
- \**Graphis dumastii* (Fée) Nyl. On bark, Mt. Vernon, Nassau (30).
- \**Graphis poiteoides* Nyl. On bark, Mangrove Cay, Andros (44).
- \**Graphis radiata* Montague. On bark, Mangrove Cay, Andros (45).
- \**Gyalecta lutea* (Dicks) Tuck. Near Mermaid Pool, Mt. Vernon, and along Soldiers road, Nassau (11, 26).
- \**Glyphis cicatricosa* Fr. On bark, Powells Point, Eleuthera (50).
- \**Heterothecium domingense* (Pers.) Flotow. On bark, Mt. Vernon, Nassau (20).
- \**Heterothecium tuberculatum* (Fée) Flotow. On trees, Soldiers road, Nassau (28).
- \**Leptogium marginellum* Sm. On bark, Blue Hills road, New Providence (25).
- \**Lecanora pallida* Schaerer. On trees, Little Mangrove Cay, Andros, Spanish Wells, George Island (39, 46).
- \**Lecanora varia* Nyl. On mango tree, Little Mangrove Cay, Andros (34).
- \**Opegrapha varia* Ach. On bark, Soldiers road, Nassau (27).
- \**Pyxine cocoae* (L.) Fr. On mango tree, Mt. Vernon, Nassau; Powells Point, Eleuthera (7, 49).
- \**Pyrenula mamillana* Ach. On mango tree, Mt. Vernon, Nassau (8).
- \**Pyrenula aurantiaca* Fée. On mango tree, Little Mangrove Cay, Andros (33).
- \**Pyrenula leucoplaca* Kbr. On mango tree, Little Mangrove Cay, Andros (36).
- \**Pyrenula fallaciosa* Tuck. On mango tree, Little Mangrove Cay, Andros (40).
- \**Parmelia citrata* Ach. On rocks, Mt. Vernon, Nassau (9).
- \**Parmelia latissima* Fée. On mango tree, Little Mangrove Cay, Andros (38).
- \**Pertusaria letiplaca* Kbr. On a scrub, Blue Hills, New Providence (24).
- \**Pertusaria velata* Nyl. On mango tree, Little Mangrove Cay, Andros (37).
- \**Pannaria molybdæa* (Pers.) Tuck. On bark, Mt. Vernon, Nassau (19).
- \**Ramalina calicaris* Fr. On mango tree, Mt. Vernon, Nassau (4).
- \**Ramalina gracilis* (Pers.) Nyl. On trees, Watlings Island (52).
- \**Trypethelium cruentum* Montague. On bark of mango tree, Mt. Vernon, Nassau (1).
- \**Trypethelium sprengelii* Ach. On mango tree, Mt. Vernon, Nassau (5).
- \**Trypethelium madreporiforme* Eschw. On trees, Mt. Vernon, Nassau; Little Mangrove Cay, Andros (12, 41).
- \**Trypethelium ochroleucum* var. *pallescens* Mull. On bark, Mt. Vernon, Nassau (15).
- \**Trypethelium interpositum* Nyl. On trees, Mt. Vernon, Nassau (31).
- \**Thelotrema microporum* Montague. At base of scrub, salt flats, near Nassau (23).
- \**Verrucaria virens* Nyl. On rocks, Mt. Vernon, Nassau (22).
- Blodgettia confervoides* Harv. Green Cay, west shore Eleuthera, Current Settlement. A marine lichen. (See Wright: Trans. Irish Acad. 28:21, pl. 2, 1881.) Determined by Dr. M. A. Howe.

\* All but the last determined by Mr. W. W. Calkins.

HEPATICÆ.<sup>21</sup>

- \**Frullania gibbosa* Nees. On trees, Soldiers road, Nassau.
- \**Frullania squarrosa* (R. Bl. & N.) Dum. On trees, Mt. Vernon and Soldiers road, Nassau.
- \**Mastigolejeunia auriculata* (Wils. & Hook.) Schiffn. On trees, Mt. Vernon and Southeast road, Nassau. Contained rotifers in the saccate under lobes of the leaves.
- \**Brachiolejeunea corticalis* (Lehm. & Lindenb.) Schiffn. On trees in high coppice near beach, ten miles west of Nassau. Also along Soldiers road, Nassau.
- \**Cheilolejeunea phyllobola* (Nees & Mont.) Schiffn. On trees and rocks, Mt. Vernon, and along Soldiers road, Nassau.
- \**Microlejeunea lucens* (Tayl.) Evans. At base of tree, Mt. Vernon, Nassau.
- \**Microlejeunea bullata* (Tayl.) Evans. On trees, Soldiers road, Nassau.
- \**Diplasiolejeunea unidentata* (Lehm. & Lindenb.) Schiffn. On trees, Soldiers road, Nassau.

MUSCI.<sup>22</sup>

- Octoblepharum albidum* Hedw. At base of trees, Mt. Vernon, Nassau. Widely distributed.
- Barbula agraria* (Sw.) Brid. (*Tortula agraria* Sw.). In a banana hole, Soldiers road, Nassau. Distribution: Florida, West Indies and South America.
- \**Calymperes disciforme* C. M. On trees, Mt. Vernon, Nassau. In reference to this species, Mrs. Britton says: "It has been reported from the Antilles and Martinique as well as from Florida. It agrees with Austin's specimens from Caloosa, Florida, although one of the main characters of the leaves is so misleading that one would naturally place it in an entirely different section . . . the margin is said to be hyalin, but this is not true."

PTERIDOPHYTA.<sup>23</sup>

- Ornithopteris adiantoides* (Sw.) Presl. In a barren field, Soldiers road, Nassau (49). Abundant in the pine-barrens on New Providence.
- Asplenium dentatum* L. The Caves, New Providence (17).
- Pteris longifolia* L. Banana hole by Soldiers road, New Providence (48).
- Polypodium polypodioides* (L.) Hitch. Mt. Vernon, Nassau (120).
- Camlyoneuron phyllitidis* (L.) Presl. On trees, Mt. Vernon, Nassau (122).
- Adiantum capillus-veneris* L. In a banana hole, Mt. Vernon, Nassau (130).
- Adiantum melanolucum* Willd. In a banana hole, Tarpon Bay, Eleuthera (396).
- Dryopteris patens* (Sw.) Kuntze. In banana holes, East road, Nassau; Mangrove Cay, Andros (136, 230).

<sup>21</sup> Determined by Dr. Alexander W. Evans. All of these species are widely distributed in tropical America, *Frullania squarrosa* (R. Bl. & N.) Dum. being found also in the tropics of Asia, Africa and the Pacific Islands. All of the species, except *Frullania gibbosa* Nees. and *Diplasiolejeunea unidentata* (Lehm. & Lindenb.) Schiffn., are also known from the southern United States.—A. W. EVANS.

<sup>22</sup> Determined by Mrs. N. L. Britton.

<sup>23</sup> Ferns and Seed Plants followed by numbers, excepting Grasses, Sedges and Palms, were identified by Dr. N. L. Britton. Species not followed by numbers were identified by me, but not collected. Localities preceding numbers are the points of collection; those following numbers are points where the plants were seen but not collected. The latter are open to possibilities of error, and are given only for what they are worth.

*Blechnum serrulatum* Rich. Low, wet places, West road, Nassau (172).

*Pteridium caudatum* (L.) Kuhn. (May Pole.) Soldiers road, New Providence (254).

Abundant in pine-barrens on New Providence and Abaco.

*Geniopteris reptans* Sw. In banana holes, Eleuthera, opposite Spanish Wells (331).

*Odontosoria clavata* (Sw.). In banana holes in pine-barrens, New Providence (297).

*Phlebodium aureum* (L.) R. Br. On trees, Eleuthera (335).

*Acrostichum aureum* L. (Wild Ginger). Very abundant in deep depressions, Mt. Vernon, Nassau.

#### CONIFERÆ.

*Juniperus barbadensis* L. Which Point, Abaco (568).

*Pinus bahamensis* Griseb. (*Pinus elliottii* Engelm.). New Providence; Abaco.

#### PHANEROGAMÆ.

##### TYPHACEÆ.

*Typha domingensis* Pers. Lake Kilcarney, New Providence; Arthurs Town, Cat Island; Watlings Island.

##### NAIADACEÆ.

*Ruppia maritima* L. In West lake, Watling Island (486).

##### ALISMACEÆ.

*Sagittaria lancifolia* L. In a fresh bay, West road, Nassau (176).

##### ELODRACEÆ.

\**Halophilla engelmannii* Aschers. In shallow sea water, Mangrove Cay, Andros (577).

##### GRAMINEÆ.\*

\**Andropogon virginicus* L. Elbow Cay, Abaco (569).

\**Andropogon tener* Kunth. Pine-barrens, New Providence (542).

*Andropogon* sp. (?) (Bed-grass). Pine-barrens, New Providence (548).

\* Determined by Dr. A. S. Hitchcock. In looking over the grasses Dr. Britton and Mr. Nash have altered a number of Dr. Hitchcock's identifications. For the sake of comparison we give these changed identifications as follows:

*Distichlis spicata* (L.) Greene (4, 491).

*Uniola virgata* (Poir.) Griseb. (7, 301, 349).

*Stenotaphrum secundatum* (Walt.) Kuntze (96, 261).

*Capriola dactylea* (L.) Kuntze (97).

*Eustachys petraea* (Sw.) Desv. (99, 350).

*Paspalum* sp. (197, 267).

*Chætochloa imberbis* (Poir.) Scribn. (263).

*Panicum maximum* Jacq. (338).

*Panicum proliferum* Lam. (489).

*Chætochloa caudata* (Lam.) Scribn. (522).

*Schizachyrium* sp. (542).

*Syntherisma fimbriatum* (Link) Nash (570).

\**Paspalum vaginatum* Sw. Fertile spot near beach, Watlings Island; South beach, New Providence (479, 546).

*Paspalum cæspitosum* Fluegge. Little Mangrove Cay, Andros; Rock quarry, Nassau (197, 267).

\**Panicum elephantipes* Nees (Guinea Grass). Fertile soil, Current Settlement, Eleuthera; sand near shore, Watlings Island (338, 489).

\**Setaria macrostachya* H. B. K. Water Cay, Long Island (522). New Providence; Cat Island; Watlings Island; Mangrove Cay; Rum Cay.

\**Setaria filiformis* Sw. Blue Hills, New Providence (304b).

*Setaria glauca* (L.) Scribn. Soldiers road, New Providence (263); Governors Harbor, Eleuthera; Cat Island; Watlings Island; Rum Cay.

*Cenchrus tribuloides* L. Beach near Nassau (101). Seen at nearly all points.

*Panicum fimbriatum* H. B. K. In a potato field, Elbow Cay, Abaco (570).

*Sporobolus virginicus* Kunth. Beach, Eleuthera; Current Settlement, Governors Harbor, Eleuthera; salt flats, Rum Cay; low savanna, Water Cay; Long Island; South beach, New Providence (346, 389, 439, 527, 547).

*Sporobolus indicus* (L.) R. Br. Rock quarry, Nassau (266).

*Sporobolus jacquemontii* Kunth. On beach and in pine-barrens, New Providence (95, 260, 550).

*Cynodon dactylon* (L.) Kuntze. Along roads, Nassau (97); Governors Harbor, Eleuthera.

*Chloris petrea* Desv. On beach and along Soldiers road, Nassau; Current Settlement, Eleuthera (99, 261, 350); Governors Harbor, Eleuthera; Cat Island; Rum Cay; Watlings Island; Long Island; Abaco.

*Chloris barbata* Nash (*C. polydactyla* Sw.). Soldiers road, New Providence (262); Rum Cay; Long Island.

*Eleusine indica* (L.) Gaertn. Grants Town, Nassau (285).

*Uniola paniculata* L. Beach near Nassau (109); seen in all the islands visited.

*Uniola racemiflora* Trin. (*U. virgata* (Poir.) Griseb.) Edge of a brackish pond near Nassau; on rocky coast, Current Settlement, Eleuthera (7, 349); abundant on the south shore of New Providence, and on dunes at Governors Harbor, Eleuthera.

*Distichlis maritima* Raf. Edge of brackish pond near Nassau; on fixed dunes, Watlings Island (4, 491), Abaco.

*Stenotaphrum americanum* Schk. Beach near Nassau (96). This and *Sporobolus jacquemontii* Kunth. form the turf of the golf links at Fort Charlotte, Nassau.

*Arthrostylidium capillifolium* Griseb. (Old Man's Beard). Blue Hills road, New Providence (46).

CYPERACEÆ.<sup>25</sup>

\**Cyperus vahlii* Steud. Edge of salt marsh, Clarence Harbor, Long Island (505).  
*Cyperus rotundus* L. Grants Town, Nassau (290).

<sup>25</sup> Determined by Dr. A. S. Hitchcock. In looking over the sedges Dr. Britton and Mr. Nash have altered a number of Dr. Hitchcock's identifications. For the sake of comparison we give these changed identifications as follows:

*Fimbrystilis spadicea* (L.) Vahl. (83, 449).  
*Cladium jamaicense* Crantz (86).  
*Cyperus ottonis* Baeckl. (189, 420).  
*Scleria lithosperma* (L.) Sw. (304, 305).  
*Cyperus fuligineus* Chapm. (505).

*Cyperus brunneus* Sw. Sandy soil near shore, Nassau; on beach, Powells Point, Eleuthera (189, 420); Governors Harbor, Eleuthera; Cat Island.

*Eleocharis cellulosa* Torr. In a shallow salt marsh, Powells Point, Eleuthera (419); Cat Island; Watlings Island.

*Decromena colorata* Hitch. Pine-barrens, New Providence (52); Cat Island.

*Scirpus ferrugineus* L. Wet pine-barrens, Lake Killarney, New Providence; salt flats, Rum Cay (83, 449).

\**Schænus nigricans* L. Rocks on border of a salt pond, Nassau (8).

*Cladium effusum* Torr. (*C. Jamaicense* L.) (Saw grass). Wet-barrens, Lake Killarney, New Providence (86); Cat Island; Watlings Island.

### PALMÆ.\*

*Inodes palmetto* (Walt.) Cook (*Sabal palmetto* (Walt.) R. & S.) (Thatch palm). West road, New Providence; near shore, Watlings Island; Arthurs Town; Cat Island (437, 459, 530, 576); also at Current Settlement, Gregory Town and Tarpum Bay, Eleuthera. Affects borders of fresh or slightly brackish marshes.

*Thrinax bahamensis* Cook (Goat palm, Silver palm). Green Cay; border of the Eastern lake, Watlings Island; Nassau (250, 251, 481, 529, 539). Inhabits rocky ground in the interior.

*Coccothrinax fucunda* Sarg. (Silver-leaf palm, Silver-thatch palm). Green Cay; Spanish Wells, George Island; Watlings Island (248, 249, 306, 307, 490, 528); New Providence; Long Island. Inhabits dunes and sand plains near shore.

*Cyclospathe northropi* Cook (Hog-cabbage palm). In low coppice near shore. Powells Point, Eleuthera (414); Watlings Island; Long Island. Inhabits humus soil among rocks.

### BROMELIACEÆ.

*Tillandsia utriculata* L. Arthurs Town, Cat Island (435).  
\**Tillandsia aloifolia* Hook. Which Point, Abaco (575).

### COMMELINACEÆ.

*Rhiza discolor* (L'Her.). Hance. Mt. Vernon, Nassau.

### SMILACACEÆ.

\**Smilax beirichii* Kunth. Pine-barrens, New Providence (51, 298).  
*Smilax havanensis* Jacq. West road, Nassau, (108).  
*Smilax oblongata viscidifolia* (Duham) Schulz. Mt. Vernon, New Providence (33).

### AMARYLLIDACEÆ.

*Agave rigidula* Mill. (Bamboo). Seen at Gregory Town, Governors Harbor and Tarpum Bay, Eleuthera.

*Hymenocallis arenicola* Northrop. West road, Nassau; Gregory Town, Current Settlement, Governors Harbor, and Powells Point, Eleuthera; Water Cay, Long Island; Abaco.

### DIOSCORACEÆ.

*Rajania hastata* L. Pine-barrens, New Providence (54). Which Point, Abaco.

\* Determined by Dr. O. F. Cook.

## ORCHIDACEÆ.

*Bletia verecunda* Sw. Rock holes in pine-barrens, New Providence (292).  
*Epidendrum gracile* Lindl. On a rocky bluff, Current Settlement, Eleuthera (351).  
*Epidendrum fucatum* Lindl. On trees, border of a *Conocarpus* flat, Which Point, Abaco (559).  
*Broughtonia liliacea* Henfr. On barren rocks near sea, Current Settlement, Eleuthera (370).  
*Vanilla articulata* Northrop. Soldiers road, Nassau (in flower); edge of *Conocarpus* flat, East lake, Watlings Island (in fruit) (578, 579).

## CASUARINACEÆ.

*Casuarina equisetifolia* Forst. (Spanish Cedar). Naturalized on New Providence and at Governors Harbor, Eleuthera.

## MYRICACEÆ.

*Myrica cerifera* L. (Wax-berry). On edge of a fresh-water bay near Lake Killarney, New Providence (165). Also in similar situations, West road, New Providence, and on Cat Island, and Abaco. Said to have been introduced from the United States.

## MORACEÆ.

*Ficus jacquinifolia* Rich. (Fig-tree). Mangrove Cay, Andros (209).  
 \**Ficus sapotifolia* Kunth & Béch. (Fig-tree). Mangrove Cay, Andros; Thompson's Folly, Nassau (215, 294).  
*Ficus brevifolia* Nutt. (*F. populea* var. *bahamensis* Urban) (Fig-tree). Arthurs Town, Cat Island; Clarence Harbor, Long Island (433, 512).

## ULMACEÆ.

*Trema lima* (Lam.) Hitch. (Mahoe). East road, Nassau; Mangrove Cay, Andros; Spanish Wells, George Island (141, 212, 312).

## URTICACEÆ.

*Fleurya aestuans* (L.) Gaud. Grants Town, Nassau (288).

## LORANTHACEÆ.

*Dendropemon purpureus* (L.) Kr. & Urb. On trees, Thompson's Folly, Nassau (296).  
*Phorodendron spathulifolium* Kr. & Urb. On *Swietenia mahagoni*, Blue Hills, New Providence, Which Point, Abaco (303, 558).

## POLYGONACEÆ.

*Coccolobis krugii* Lindau. Low coppice, Watlings Island (473).  
*Coccolobis retusa* Griseb. On east side of hills, Gregory Town, Eleuthera (358).  
*Coccolobis diversifolia* Jacq. Clarence Harbor, Long Island (520).  
*Coccolobis laurifolia* Jacq. (Pigeon Plum). Low coppice, Green Cay (238). Seen on all islands visited except Rum Cay.  
*Coccolobis uvifera* (L.) Jacq. (Sea Grape). Common on the shores of all the islands visited.

## CHENOPODEÆ.

\**Chenopodium spathulatum* Sieb. Gregory Town, Eleuthera (373).  
*Atriplex cristata* H. B. K. Powells Point, Eleuthera (416).  
*Salicornia ambigua* Michx. Port Nelson, Rum Cay (448); Which Point, Abaco.

## AMARANTACEÆ.

*Lithophila vermicularis* (L.) Uline. North beach west of Nassau; Little Mangrove Cay, Andros; edge of West lake, Watlings Island (37, 201, 476).  
\**Alternanthera maritima* St. Hil. Little Mangrove Cay, Andros (196).  
*Alternanthera repens* (L.) Kuntze. A weed in door-yards, Spanish Wells, George Island (313).  
*Iresine paniculata* (L.) Kuntze. In sand near shore, Mangrove Cay, Andros; Tarpum Bay, Eleuthera (214, 407).  
\**Amaranthus tristis* L. Soldiers road, Nassau (264). A weed.

## BATIDEÆ.

*Batis maritima* L. Shore of West lake, Watlings Island (482); Elbow Cay, Abaco.

## PHYTOLACCACEÆ.

*Rivina humilis* L. Near The Caves, New Providence; Mangrove Cay, Andros; Arthurs Town, Cat Island (76, 210, 424).  
*Rivina laevis* L. In the coppice, Elbow Cay, Abaco (572).  
\**Petiveria alliacea* L. Grants Town, Nassau (293).

## NYCTAGINACEÆ.

\**Torrubia obtusata* (Jacq.) Britton. Low coppice, New Providence (5, 252).  
*Torrubia longifolia* (Heimerl) Britton (Blolly-bush). Nassau; near shore, Spanish Wells, George Island; Watlings Island (15, 41, 316, 472); seen at most points visited. This is the plant identified by Northrop as *Pisonia obtusata* Sw.  
\**Torrubia cokeri* Britton. Tarpum Bay, Eleuthera (401); low coppice, New Providence. A new species described by Dr. Britton in the Bulletin of the Torrey Botanical Club for November, 1904.  
*Bærhaavia paniculata* Rich. Current Settlement, Eleuthera (344).  
*Bærhaavia scandens* L. Gregory Town, Eleuthera (374).

## AIZOACEÆ.

*Sesuvium portulacastrum* L. On sandy beaches of all the islands visited.

## PORTULACEÆ.

*Portulaca oleracea* L. East road, Nassau; Mangrove Cay, Andros (131, 219, 221).  
*Portulaca pilosa* L. Among dry rocks, Port Nelson, Rum Cay (440).  
*Portulaca halimoides* L. Mount Vernon, Nassau; Mangrove Cay, Andros (128, 220).

## ANONACEÆ.

*Anona palustris* L. (Custard apple, Pond apple). In brackish bays, New Providence, Cat Island; Tarpum Bay, Eleuthera.

## NYMPHÆACEÆ.

\**Castalia ampla* (DC.) Green. In a fresh pond, Arthurs Town, Cat Island (434).

## LAURACEÆ.

*Ocotea catesbyana* (Mich.) Sarg. Low coppice, Mt. Vernon, Nassau (30).

*Cassytha filiformis* L. Parasitic on trees and scrubs, Nassau (112). Also on Mangrove Cay, Andros; Green Cay; Watlings Island; Long Island; Abaco.

## LYTHRACEÆ.

*Ammania latifolia* L. On margin of a brackish marsh, Watlings Island (460).

## CRUCIFERÆ.

*Cakile equalis* L'Her. Governors Harbor, Eleuthera (385).

*Lepidium virginicum* L. A weed introduced about Nassau.

## CAPPARIDACEÆ.

\**Capparis jamaicensis* Jacq. (Wild Orange). Clarence Harbor, Long Island (497, 506). On vigorous young shoots the leaves are long and narrow.

## CRASSULACEÆ.

*Bryophyllum pinnatum* (Lam.) Krug. (Live-forever). New Providence; Tarpum Bay, Eleuthera; Cat Island.

## ROSACEÆ.

*Chrysobalanus icaco* L. (Cocoa plum, Pigeon plum). West road, Nassau (88). On the shores of all the islands visited. Fruit pink.

*Chrysobalanus fellocarpus* Meyer (Cocoa plum, Pigeon plum). Common, with the above, on all the islands visited. Fruit black.

## MIMOSACEÆ.

*Acacia choriophylla* Benth. (Cinnecord). Mangrove Cay, Andros (207). Common on all the islands visited.

*Leucaena glauca* (L.) Benth. (Jumby-bean). Nassau (38). Gregory Town, Eleuthera. A common weed in old fields.

*Lysiloma latisiliqua* (L.) Benth. (*L. bahamensis* Benth.) (Wild Tamarind). Soldiers road, Nassau (47). Mangrove Cay, Andros; Cat Island; Long Island.

*Lysiloma paucifolia* (DC.) A. S. Hitch. (Horseflesh, Sabicu). Not uncommon on New Providence, Andros and Eleuthera.

*Calliandra formosa* Benth. Eleuthera, opposite Spanish Wells (321); Gregory Town, Eleuthera. Leaves sensitive. Only a few specimens found.

*Calliandra haematomma* (DC.) Benth. (Brier-tree). Watlings Island (484). Also on Abaco. Abundant in low coppice.

*Pithecolobium hystrix* Benth. Killarney pine-barrens, New Providence (182).

\**Pithecolobium mucronatum* Britton (sp. nov.†). A scrub about 2 m. high, the young shoots and peduncles sparingly pubescent. Leaves with two pairs of leaflets, the petiole 1 cm. long or less, longer than or equaling the stiff, sharp, puberulent, stipular spines, and mostly longer than the petiolules; leaflets coriaceous, rather narrowly obovate, 2 cm. long or less, glabrous, bright green and shining above, pale green and dull beneath, the midvein excurrent as a mucro 0.5-1 mm. long; peduncles axillary to the upper leaves and much exceeding them, slender, 5 cm. long or less, erect-ascending; inflorescence puberulent;

† Species thus designated have been described by Dr. M. L. Britton, and are here published for the first time.

flowers pink; calyx-lobes, ovate, acute; corolla-lobes ovate to ovate-lanceolate. Dry thicket near Clarence Harbor, Long Island, W. C. Coker, July 16, 1903 (518). Not common (518).

✓ *Pithecolobium keyense* Britton (Ram's horn). Nassau (57). Common near the coast on both sides of New Providence, and on all the other islands visited. *Pithecolobium bahamense* Northrop. East road, Nassau (159).

#### CASSICEÆ.

*Cæsalpinia bahamensis* Lam. Lake Killarney pine-barrens, and West road, New Providence (1, 84, 166).

*Cæsalpinia lucida* Urban. Gregory Town, Eleuthera (360).

*Cæsalpinia* sp. (?). Thick coppice near lake, Watlings Island (470).

\**Cæsalpinia vesticaria* L. (Braziletto). Clarence Harbor, Long Island (516).

*Cassia bahamensis* Mill. (Stinking Pea). Blue Hills road, New Providence (9); Current Settlement, Gregory Town, and Tarpum Bay, Eleuthera; Cat Island; Rum Cay; Long Island. A common weed.

\**Cassia lineata* Sw. Blue Hills road, New Providence; Green Cay (10, 245).

*Cassia occidentalis* L. Nassau, Tarpum Bay, Eleuthera (178, 279, 403).

\**Cassia aspera* Mich. Tarpum Bay, Eleuthera (402).

*Guilandina major* (DC.) Small (Nicker bean). Common near shore on New Providence. Beans slate color.

*Guilandina crista* (L.) Small (Nicker bean). Common near shore on New Providence. Beans red.

*Hæmatoxylon campechianum* L. (Logwood). Current Settlement, Eleuthera; Clarence Harbor, Long Island; New Providence.

#### PAPILIONACEÆ.

*Crotalaria verrucosa* L. Low, dry plane, Clarence Harbor, Long Island (499).

*Abrus precatorius* L. (Bead-vine, Wild Licorice, Crab's eyes). Near Mt. Vernon, Nassau (115).

*Cajanus cajan* (L.) Millsp. (Pigeon pea). Mangrove Cay, Andros (206); Watlings Island.

*Meibomia supina* (Sw.) Britton. Grants Town, Nassau; Gregory Town, Eleuthera (281, 359).

*Ichthyomethia piscipula* (L.) Hitch. (Dogwood). Mangrove Cay, Andros; Eleuthera, opposite Spanish Wells (233, 327). Tarpum Bay and Current Settlement, Eleuthera; Cat Island; Watlings Island; Which Point, Abaco.

*Stylosanthes hamata* (L.) Taub. In streets of Current Settlement, Eleuthera; pine-barrens, New Providence (339, 541).

*Galactia spiciformis* T. & G. Governors Harbor, Eleuthera; Elbow Cay, Abaco (386, 571).

*Galactia bahamensis* Urban. Port Nelson, Rum Cay (454).

*Galactia rudolphoides* (Griseb.) Benth & Hook. Pine-barrens, New Providence; Gregory Town, Eleuthera (55, 368).

*Sophora tomentosa* L. Near coast, Port Nelson, Rum Cay (446).

*Cracca cinerea* (L.) Morong. Sandy soil, Port Nelson, Rum Cay (450).

*Dalbergia ecastophyllum* (L.) Taub. (Tit). West road, 8 miles from Nassau, margin of brackish pond near beach, Watlings Island (170, 458).

*Canavalia obtusifolia* (Lam) DC. (Horse bean). Sandy places near the shore, New Providence; Spanish Wells, George Island; Cat Island; Rum Cay; Mangrove Cay; Long Island.

*Canavalia* sp. Edge of town, Tarpum Bay, Eleuthera (411).

## OXALIDACEÆ.

*Oxalis corniculata* L. Grants Town, Nassau (275).

## ZYGOPHYLLACEÆ.

*Guaiacum sanctum* L. (Lignum vitæ). Green Cay (235); Green Cay; Rum Cay; Watlings Island; Clarence Harbor, Long Island.

## LINACEÆ.

*Erythroxylon brevipes* DC. (Sareto). Low coppice, New Providence; Powells Point, Eleuthera; Arthurs Town, Cat Island; Clarence Harbor, Long Island (137, 421, 427, 509); Abaco. Fruit of this or the following species was found in stomachs of Iguanas killed on Watlings Island.

*Erythroxylon obovatum* MacF. Blue Hills, New Providence; Mangrove Cay, Andros; Clarence Harbor, Long Island (508, 222, 555).

*Linum bahamense* Northrop. On the beach, Which Point, Abaco (566).

## MALPIGHIACEÆ.

*Triopteris rigida* Sw. East road, Nassau; Watlings Island (40, 477); Long Island.

*Byrsonima lucida* (Sw.) DC. (Sweet Margaret). Killarney barrens, New Providence (65); Watlings Island; Cat Island; Abaco.

*Stigmatophyllum sagrænum* Juss. Mangrove Cay, Andros; Clarence Harbor, Long Island (223, 502).

*Malpighia polytricha* Juss. (Touch-me-not). Spanish Wells, George Island (311). On fixed dunes, Governors Harbor, Eleuthera; New Providence; Long Island.

*Bunchosia glandulosa* (Cav.) Rich. Killarney pine-barrens, New Providence; Current Settlement and Governors Harbor, Eleuthera (64, 348). Not common at any point.

## RUTACEÆ.

*Fagara fagara* (L.) Small (Wild Lime). Low coppice, Nassau (32). Common on Eleuthera, and Cat Island.

*Fagara flava* (Vahl). Kr. & Urb. (Yellow-wood, Doll-bush). Elbow Cay, Abaco (574).

*Fagara coriacea* (A. Rich.) Kr. & Urb. (Hercules' club, Doctor's club). Mangrove Cay, Andros; Clarence Harbor, Long Island (232, 511).

*Picramnia pentandra* Sw. Tarpum Bay, Eleuthera (400).

\**Simaruba glauca* Kunth. (Bastard Mastic). High coppice, Blue Hills road, New Providence (538).

## TEREBINTHACEÆ.

*Amiyris elemifera* L. (White Torch). Low coppice, Watlings Island (464); Spanish Wells, George Island; Long Island.

## SIMARUBACEÆ.

*Picramnia pentandra* Sw. East road, Nassau (147).

*Picrodendron baccatum bahamense* Kr. & Urb. Rocky coppice, Current Settlement, Eleuthera (352). Only a few specimens seen.

*Suriana maritima* L. (Bay Cedar). Along the shores of all the islands visited.

## BURSERACEÆ.

*Swietenia mahogani* L. (Mahogany, Madeira). Low coppice, Soldiers road, New Providence (153, 259); Powells Point, Eleuthera; Rum Cay; Abaco.

*Bursera simaruba* (L.) Sarg. (Gum-elm). Common on New Providence, Eleuthera; Watlings Island; Long Island; Abaco.

## MELIACEÆ.

*Melia azedarach* L. (China-tree). Tarpum Bay, Eleuthera (413).

## EUPHORBIACEÆ.

*Croton eleuteria* (L.) Sw. (Cascarilla, Sweet-wood bark). Low coppice, Nassau (3a).

*Croton kuearis* Jacq. (Granny-bush). Near shore, New Providence; Governors Harbor, Eleuthera (23, 387); Tarpum Bay and Powells Point, Eleuthera; Long Island.

*Croton lucidus* L. Opposite Spanish Wells, George Island; Watlings Island (326, 471).

\**Croton discolor* Willd. Port Nelson, Rum Cay (453).

*Croton lobatus* L. Pine-barrens, New Providence (553).

*Phyllanthus epiphyllanthus* L. (Hardhead). Mt. Vernon, Nassau; Clarence Harbor, Long Island (31, 524); common on Eleuthera, Cat Island; Watlings Island.

*Phyllanthus niruri* L. Mangrove Cay, Andros (227).

\**Phyllanthus virens* Muell. Arg. Opposite Spanish Wells, George Island (328); a clambering scrub.

*Euphorbia punicea* Sw. Small Cay in lake, Watlings Island (487).

\**Euphorbia havanensis* Willd. Banana field, Soldiers road, Nassau (45).

*Euphorbia buxifolia* L. On beach, New Providence (114); on sandy beaches of all the islands.

*Euphorbia pilulifera* L. Eleuthera, opposite Spanish Wells (319); among cocoanut palms near shore.

\**Euphorbia brasiliensis* L. Gregory Town, Eleuthera (371).

\**Euphorbia cayensis* Millsp. On beach, Rum Cay (452); Abaco. A new species, first collected by us; afterward collected and named by Dr. Millspaugh.

*Buxus bahamensis* Baker. Killarney pine-barrens, New Providence; Watlings Island (68, 474).

\**Savia bahamensis* Britton (Joe-wood, Bastard Crab-wood). Low coppice, East road, Nassau (157, 160). A new species described by Dr. Britton in *Torreya*, July, 1904.

*Gymnanthes lucida* Sw. (Crab-wood). Spanish Wells, George Island; Watlings Island (314, 467); Gregory Town, Eleuthera; Long Island; Abaco.

*Bernardia bernardia* (L.) Britton (*Bernardia carpinifolia* Griseb.). Tarpum Bay, Eleuthera (405).

*Argythamnia candicans* Sw. Tarpum Bay, Eleuthera (409).

*Hippomane mancinella* L. (Manchineel). Low coppice, Watlings Island (468, 485).

*Exacaria sagrei* Muell. Low coppice Watlings Island (478).

\**Bonamia cubana* A. Rich. Low, dry coppice, Arthurs Town, Cat Island (428).

*Drypetes lateriflora* (Sw.) Kr. & Urb. Blue Hills, New Providence (535).

\**Pera humilisfolia* Griseb. (Brown Ebony). High coppice at junction of Soldiers road and Blue Hills road, New Providence (537). A large tree.

\**Securinego acidothamnus* (Griseb.) Muell. Arg. Base of a rocky hill, Mangrove Cay, Andros (225). Not before known north of St. Thomas.

#### ANACARDIACEÆ.

*Metopium metopium* (L.) Small (Poison-wood). Common on New Providence; Mangrove Cay; Andros; and Abaco. Less common on Eleuthera; Cat Island; Rum Cay and Watlings Island.

#### CELASTRACEÆ.

*Crassopetalum pallens* (Smith) Northrop. Mangrove Cay, Andros; Current Settlement, Eleuthera (231, 341).

*Maytenus buxifolia* (Rich.) Griseb. (Spoon-wood). Clarence Harbor, Long Island; low coppice, Watlings Island (494, 475).

\**Gyminda grisebachii* Sarg. Clarence Harbor, Long Island (504).  
*Schaefferia frutescens* Jacq. West road, Nassau (72).

#### ILICACEÆ.

*Ilex krugiana* Loes. High coppice, Blue Hills road, New Providence (536); Watlings Island.

*Ilex repanda* Griseb. High coppice, Blue Hills road, New Providence (552).

#### SAPINDACEÆ.

*Thouinia discolor* (Griseb.) (Hard-bark, Quicksilver-bush). East road, Nassau; Eleuthera, opposite Spanish Wells (143, 329). Watlings Island.

*Hypelate trifoliata* Sw. (Candle-wood, Red-wood). East road, Nassau; Mangrove Cay, Andros; Clarence Harbor, Long Island (152, 234, 493).

*Exothea paniculata* (Juss.) Radlk. (Butter-bough). East road and Blue Hills road, New Providence; Tarpum Bay, Eleuthera (149, 399, 534); Abaco. Berries said to be poisonous.

*Melicocca bijuga* L. (Genipe). East road, Nassau (154).

*Serjania subdentata* (Juss.) Poir. (Foul-foot vine). Mangrove Cay, Andros; Eleuthera, opposite Spanish Wells (217, 333).

*Serjania diversifolia* Radlk. (Foul-foot vine). Gregory Town, Eleuthera (357).

*Cardiospermum halicacabum* L. (Balloon-vine). Tarpum Bay, Eleuthera (397). Probably introduced.

*Dodonæa viscosa* L. (Candle wood). Port Nelson, Rum Cay; near the beach, Which Point, Abaco (444, 567).

#### RHAMNACEÆ.

*Reynosia septentrionalis* Urban (Darling plum, corrupted by the natives to Dorlin plum). West road, Nassau; Spanish Wells, George Island (24, 309). Gregory Town, Powells Point, and Tarpum Bay, Eleuthera; Cat Island; Watlings Island; Long Island; Rum Cay.

*Krugiodendron ferreum* (Vahl.) Urban (Iron-wood, Hard-wood). East road, Nassau; Clarence Harbor, Long Island (42, 503).

*Colubrina colubrina* (L.) Millsp. (Wild Coffee). In sand near beach, Green Cay; Rum Cay (240, 442); Long Island.

*Colubrina reclinata* (L'Her.) Brogn. Clarence Harbor, Long Island (519).

*Gouania domingensis* L. (Chew Stick). Not uncommon in the coppice on New Providence and Eleuthera.

#### VITACEÆ.

*Cissus sicyoides* L. Mt. Vernon, Nassau; Gregory Town, Eleuthera (117, 380).

*Cissus* sp. Blue Hills, New Providence (304).

*Cissus acida* L. Clarence Harbor, Long Island (498).

*Cissus microcarpa* Vahl. (Bull-vine). Nassau.

*Vitis rotundifolia* Mich. Pine-barrens, Blue Hills road, New Providence.

*Parthenocissus quinquefolia* (L.) Planch. Seen in a rocky clearing on Mangrove Cay, Andros; and among almost bare rocks on top of a hill at Gregory Town, Eleuthera; also at Current Settlement and Tarpum Bay, Eleuthera.

#### TILIACEÆ.

*Corchorus hirsutus* L. Near shore, New Providence; in a potato field, Elbow Cay, Abaco (39, 573).

#### MALVACEÆ.

*Sida carpinifolia* L. Mt. Vernon, and Rock Quarry, Nassau; Current Settlement, Eleuthera (133, 270, 343).

*Sida ciliaris* L. Current Settlement, Eleuthera (340). Prostrate on exposed rocks.

*Abutilon crispum* (L.) Medic. Clearing in coppice, Current Settlement, Eleuthera (345).

*Gossypium barbadense* L. (Cotton). Top of a barren, rocky hill, Rum Cay (456).

*Pavonia spinifex* (L.) Cav. Clarence Harbor, Long Island (495). Also seen at Lake Killarney, New Providence.

*Malvaviscus cokeri* Britton (sp. nov.†). A scrub, 2 m. high or less, with round glabrous branchlets. Leaves ovate, acuminate, cordate, thin, 7-nerved, entire or slightly repand, the upper surface glabrous but papillose, the under side glabrous except for tufts of hairs in the axils of the principal veins, and a few scattered ones on the veins, the blades 5 or 6 cm. long, 3 or 4 cm. wide, the petioles slender, 1.5-2.5 cm. long; peduncles slender, puberulent, 2 or 3 times as long as the petioles; involucracts narrowly linear, acuminate, glabrous, 1 cm. long, 1.5 mm. wide, about as long as the calyx; calyx-lobes triangular-ovate, acuminate, about one-half as long as the tube, woolly within; petals about 2 cm. long; stamen-column 3 cm. long or more. Foot of a dry, rocky hill, interior of Watlings Island (483). Bahamas, W. C. Coker, July 12, 1903.

#### STERCULIACEÆ.

*Helicteres spiralis* Northrop. Mt. Vernon, Nassau; Governors Harbor, Eleuthera (44, 391).

*Melochia tomentosa* L. (Stain-bark). Mt. Vernon, Nassau (121).

*Melochia pyramidata* L. Grants Town, Nassau (289).

*Waltheria americana* L. Current Settlement, Eleuthera (337).

#### HYPERICACEÆ.

*Ascyrum hypericoides* L. Pine-barrens, New Providence.

#### BIXACEÆ.

*Xylosma ilicifolia* Northrop. Low coppice, opposite Spanish Wells, George Island (324).

*Xylosma* sp. Pine-barrens, Which Point, Abaco (562).

#### CANELLACEÆ.

*Canella winteriana* (L.) Gaertn. (Wild Cinnamon, Bahama Whitewood bark). East road, Nassau; Port Nelson, Rum Cay (124, 447).

#### TURNERACEÆ.

*Turnera ulmifolia* L. Blue Hills road, and East road, New Providence (11, 132, 269). A weed near settlements on all of the islands visited.

## PASSIFLORACEÆ.

\**Passiflora rubra* L. Grants Town, Nassau (274).  
*Passiflora pectinata* Griseb. Killarney pine-barrens, New Providence (70).  
*Passiflora minima* L. In a cleared coppice, Mangrove Cay, Andros (228).  
*Passiflora foetida* L. Grants Town, Nassau; Green Cay (282, 242). On Green Cay a stout specimen about two feet high was found growing quite upright on the sandy shore.

## CACTACEÆ.

*Opuntia tuna* Mill. Governors Harbor, Eleuthera; Port Nelson, Rum Cay (392, 457); Spanish Wells, Georges Island; Watlings Island.  
\**Opuntia triacantha* DC. (Dildo). Port Nelson, Rum Cay (438).  
*Pilocereus lanuginosus* Rumpf. Current Settlement, Eleuthera (354); Watlings Island; Long Island.

## RHIZOPHORACEÆ.

*Rhizophora mangle* L. (Mangrove). Common along protected salt water in all the islands.

## MYRTACEÆ.

\**Eugenia confusa* DC. (Stopper). East road, Nassau (144); Current Settlement, Gregory Town, Tarpum Bay and Powells Point, Eleuthera; Mangrove Cay; Cat Island; Long Island; Rum Cay.  
*Eugenia longipes* Berg. Killarney pine-barrens, New Providence; low coppice, near shore Powells Point, Eleuthera (187, 418). Specimens at Powells Point had branches descending three or four feet and then running closely pressed to the sand.  
*Eugenia axillaris* (Sw.) Willd. Mangrove Cay, Andros; Eleuthera, opposite Spanish Wells (216, 322); Gregory Town, Eleuthera.  
\**Eugenia punctata* Vahl. Tarpum Bay, Eleuthera (406).  
*Eugenia buxifolia* (Sw.) Willd. Powells Point, Eleuthera; Watlings Island (417, 462); Rum Cay; Long Island; Abaco.  
*Chytraculia pallens* (Griseb.) Britton (Spice-wood). Low coppice, Watlings Island (466).

## COMBRETACEÆ.

*Laguncularia racemosa* (L.) Gaertn. (White Mangrove). New Providence (78).  
*Conocarpus erecta* L. (Button-wood). In saline soil on all the islands visited.  
*Conocarpus erecta sericea* Fors. (Button-wood). A white-leaved form of the above, and growing with it on all the islands visited.

## MELASTOMACEÆ.

*Tetrazygia bicolor* (Mill.) Cogn. (Wild Guava). East road, Nassau (139). New Providence; Watlings Island; Long Island; Abaco.

## SAMYDACEÆ.

*Banara reticulata* Griseb. Pine-barrens, New Providence; Governors Harbor, Eleuthera (186, 544, 390).  
\**Zuelania lactioides* Rich. Killarney barrens, New Providence (97); also on Blue Hills road.

## UMBELLIFERÆ.

*Centella repanda* (Pers.) Small. On edge of a fresh bay, West road, Nassau (177); Cat Island, Watlings Island.

\**Foeniculum foeniculum* (L.) Karst. (Fennel). Grants Town, Nassau (284). Naturalized from Europe.

## MYRSINIACEÆ.

*Rapania guyanensis* Aubl. (Beef-wood). Killarney barrens and Soldiers road, New Providence (60, 533). Long Island; Abaco.

*Jacquinia keyensis* Mez. (Joe-bush). Edge of brackish pond, Blue Hills road, New Providence; Green Cay; Eleuthera, opposite Spanish Wells (6, 236, 334); Gregory Town and Powells Point, Eleuthera; Rum Cay; Long Island; Abaco.

*Icacorea paniculata* (Nutt.) Sudw. High coppice, Blue Hills road, New Providence (299, 532).

## SAPOTACEÆ.

*Mimusops sieberi* A. DC. (Wild Sapodilla). Brackish flats near Nassau (13); Rum Cay; Watlings Island; Green Cay.

*Bumelia microphylla* Griseb. (Ink-berry). Brackish flats, New Providence; Little Mangrove Cay, Andros (16, 58, 202); also on the other islands visited.

\**Bumelia loranthifolia* (Pierre) Britton (Milk Plum, Saffron). Killarney barrens and East road, New Providence; Spanish Wells, George Island (20, 156, 315); Gregory Town and Governors Harbor, Eleuthera; Cat Island; Rum Cay; Mangrove Cay; Long Island, Abaco. This is given in Northrop as *B. cubensis* Griseb.

*Diphollis salicifolia* (L.) A. DC. (Wild Cassada, Bustic). East road, Nassau; Green Cay; Tarpum Bay, Eleuthera (140, 257, 395); Powells Point, Eleuthera.

*Chrysophyllum* sp. West road, Nassau (180).

*Sideroxylon masticodendron* Jacq. (Mastic). Eleuthera, opposite Spanish Wells (325); West road, New Providence; Current Settlement, Tarpum Bay, and Powell's Point, Eleuthera.

\**Lucuma multiflora* A. DC. (Mammee Sapota, Wild Mambee). East road, Nassau (158). Also in high coppice, Blue Hills road, New Providence.

## EBENACEÆ.

*Macreightia caribæa* A. DC. (Cannabis-bark). Low coppice on East road, Nassau (150).

## OLEACEÆ.

\**Adelia segregata* (Jacq.) Small. In sandy soil, Spanish Wells, George Island (310).

\**Ximenia americana* L. Prostrate on the exposed beach, Rum Cay (451).

## LOGANIACEÆ.

*Cynoctonum mitreola* (L.) Britton. Wet places, West road, Nassau (175).

*Spigelia anthelmia* L. By fresh marsh, Arthurs Town, Cat Island (429).

## GENTIANACEÆ.

*Eustoma exaltatum* (L.) Griseb. Beach near Nassau; Arthurs Town, Cat Island (35, 422); Rum Cay.

*Sabbatia campanulata* (L.) Torr. Marshy soil, Lake Killarney, New Providence; Arthurs Town, Cat Island (74, 432).

## APOCYNACEÆ.

*Vallesia glabra* Cav. Gregory Town and Tarpum Bay, Eleuthera (361).

*Rhabdadenia sagræi* (A. DC.) Small (*Echites sagræi* A. DC.). Pine-barrens, New Providence; Tarpum Bay, Eleuthera (75, 302, 394); all points on Eleuthera; Watlings Island.

*Rhabdadenia biflora* (Jacq.) Mill. (*Echites biflora* Jacq.). Edge of conocarpus marsh, west of Nassau (79); Mangrove Cay; Gregory Town and Governors Harbor, Eleuthera; Rum Cay; Watlings Island; Abaco.

*Urechites andrewsii* (Chapm.) Small (*Echites andrewsii* Chapm.). West road, Nassau (81).

*Echites umbellata* Jacq. Soldiers road, Nassau (253); Tarpum Bay, Eleuthera; Rum Cay; Watlings Island.

*Ammocallis rosea* (L.) Small (*Vinca rosea* L.). Soldiers road, New Providence (255); in sand near shore, Tarpum Bay, Eleuthera. Also cultivated.

*Plumiera obtusa* L. (Frangipani). West road, Nassau; Mangrove Cay, Andros; Powells Point, Eleuthera; Rum Cay.

## ASCLEPIADACEÆ.

*Asclepias curassavica* L. Nassau (125, 272).

*Metastelma palustre* (Pursh.) Schltr. Green Cay; Governors Harbor, Eleuthera (237, 384).

\**Metastelma brachystephanum* Griseb. (?). Water Cay, Long Island (525).

## CONVOLVULACEÆ.

*Ipomoea dissecta* Pursh. (*I. sinuata* Ort.). Nassau; Arthurs Town, Cat Island (2, 426).

\**Ipomoea sagittata* Cav. (*I. speciosa* Walt.). Border of a fresh marsh on South side, New Providence (549).

*Ipomoea pes-caprae* L. (Bay Hop). Beach near Nassau (105). Watlings Island.

*Jacquemontia jamaicensis* (Jacq.) Hall. West road, Nassau (103).

*Evolvulus arbusculus* Poir. On sand near beach, Current Settlement, Eleuthera (336); Cat Island; Rum Cay; Tarpum Bay, Eleuthera.

*Evolvulus sericeus* Sw. Pine-barrens, New Providence (544).

*Calonyction bona-nox* (L.) Boj. (*Ipomoea bona-nox* L.) (Moonflower). Rum Cay, among Mangroves (445). Naturalized from India.

## BORAGINACEÆ.

*Heliotropium curassavicum* L. Beach near Nassau (36).

*Duranta repens* L. (Bitter-sweet). Low coppice, New Providence (61); Mangrove Cay, Andros; Abaco.

*Cordia sebestena* L. West road, Nassau; Little Mangrove Cay, Andros (62, 195).

*Cordia bahamensis* Urban. (Granny-bush). Near north shore, New Providence (77, 106); Cat Island; Long Island; Abaco. This is given in Northrop as *C. lima* R. & S.

\**Cordia cylindrostachya* R. & S. Gregory Town, Eleuthera; Clarence Harbor, Long Island (378, 496).

*Cordia globosa* (L.) H. B. K. Clarence Harbor, Long Island (501).

*Cordia* sp. Rum Cay (443). A weed along shore.

*Bourreria havanensis* (Willd.) Miers. (Strong-back). Mangrove Cay, Andros; Soldiers road, New Providence (208, 213, 258). Common on all the islands visited.

*Bourreria thymifolia* Griseb. On sand near the shore, Rum Cay (443).  
*Tournefortia gnaphaloides* (Jacq.) R. Br. On sandy shores of all the islands visited.  
*Heliotropium parviflorum* L. Nassau (129, 271). A common weed.

## VERBENACEÆ.

*Lantana involucrata* L. Killarney barrens, New Providence. In sand near shore, Tarpum Bay, Eleuthera (21, 410). Spanish Wells, George Island; Gregory Town, Eleuthera; Rum Cay; Cat Island; Watlings Island; Long Island; Abaco.  
*Lantana crocea* Jacq. Near Mt. Vernon, Nassau; Clarence Harbor, Long Island (126, 513); common in Eleuthera; Rum Cay; Watlings Island.

*Lippia canescens* Kunth. Beach near Nassau (98).

\**Lippia stachadifolia* Kunth. By a fresh marsh, Arthurs Town, Cat Island (430).

*Lippia nodiflora* (L.) Michx. Grants Town, Nassau (280).

*Valerianodes jamaicensis* (L.) Kuntze. (*Abena jamaicensis* (L.) A. S. Hitch.). On the beach, Nassau (113); Mangrove Cay; Cat Island; Rum Cay; Watlings Island.

*Petetia paupigii* Schau. Pine-barrens, New Providence; Mangrove Cay, Andros; Arthurs Town, Cat Island (162, 224, 423, 556); Watlings Island.

\**Citharexylum quadrangulare* Jacq. High coppice, Mangrove Cay, Andros; along shore, Watlings Island; Clarence Harbor, Long Island (226, 488, 514).

*Priva lappulacea* (L.) Pers. Grants Town, Nassau (268).

*Avicennia nitida* Jacq. (Black Mangrove). In salt marshes on most of the islands.

*Duranta repens* L. (Bitter-sweet). Common in low coppice, New Providence; Mangrove Cay; Abaco.

## LABIATÆ.

\**Salvia micrantha* Vahl. East road, Nassau; Mangrove Cay, Andros; Gregory Town, Eleuthera (155, 205, 376).

*Leonurus sibiricus* L. Grants Town, Nassau (283).

*Leonotis nepetifolia* (L.) R. Br. Grants Town, Nassau (287).

\**Scutellaria longiflora* Small. Along road, Governors Harbor, Eleuthera (388).

A new species just described from south Florida by Dr. J. K. Small.

*Teucrium cubense* L. Tarpum Bay, Eleuthera (398).

## SOLANACEÆ.

*Solanum bahamense* L. Mt. Vernon and West road, Nassau; near shore, Rum Cay (119, 171, 441); Mangrove Cay, Andros; Tarpum Bay, Eleuthera; Cat Island; Watlings Island; Long Island.

*Solanum nigrum* L. Near shore, Mangrove Cay, Andros (229).

*Solanum aculeatissimum* Jacq. Grants Town, Nassau (276).

\**Solanum havanense* Jacq. (Old-man's plum, Devil's plum). Sandy soil, Spanish Wells, George Island (317). Berry said to be poisonous.

*Solanum verbascofolium* L. Tarpum Bay, Eleuthera (393). New Providence, Mangrove Cay; Rum Cay; Watlings Island.

\**Datura arborea* L. Grants Town, Nassau (277).

*Capsicum baccatum* L. Governors Harbor, Eleuthera (382).

## SCROPHULARIACEÆ.

*Capraria biflora* L. West road, Nassau; Gregory Town, Eleuthera (82, 375).

*Maurandia antirrhiniflora* (Pers.) Willd. (Wild Yam). East road, Nassau (146).

*Stemodia maritima* L. Brackish bays, West road, Nassau (191).

*Gerardia maritima* Raf. Edge of brackish pond, Nassau; Which Point, Abaco (300, 565).

*Gerardia domingensis* Spreng. Spanish Wells, George Island (355).

*Russelia juncea* Zucc. In a graveyard, Spanish Wells, Eleuthera (308). Introduced, but now thoroughly established.

*Monnieria monnieria* (L.) Britton. Borders of a fresh marsh near shore, Watlings Island (461).

*Buchnera elongata* Sw. Pine-barrens, New Providence (543).

#### LENTIBULACEÆ.

*Utricularia* sp. Fresh-water pool, Arthurs Town, Cat Island (436).

#### BIGNONIACEÆ.

*Tecoma bahamensis* Northrop. Nassau (110). Mangrove Cay, Andros; Clarence Harbor, Long Island; Gregory Town and Tarpum Bay, Eleuthera; Cat Island; Watlings Island; Abaco.

*Stenolobium stans* (L.) G. Don. (*Tecoma stans* (L.) Juss.) (Yellow Elder). Nassau (295); Current Settlement, Eleuthera.

#### ACANTHACEÆ.

*Diapodium assurgens* (L.) Kuntz. Rock quarry, Nassau; Water Cay, Long Island (273, 523).

*Anthacanthus acicularis* (Sw.) Nees. Gregory Town, Eleuthera (377); Watlings Island; Abaco.

#### RUBIACEÆ.

*Philanthus myrtilloides* Griseb. (Boar Black-torch). Low coppice, Watlings Island (469).

*Antirrhæa lucida* (Sw.) Hook. Clarence Harbor, Long Island (517).

*Antirrhæa myrtifolia* (Griseb.) Urban. Near the beach, Green Cay (246).

*Langeria densiflora* (Griseb.) B. & H. High coppice, Blue Hills road, New Providence (551).

*Chiococca parvifolia* Willd. Low coppice, Soldiers road, New Providence (557).

*Chiococca pinetorum* Britton. Killarney pine-barrens, and low places on North shore, New Providence (18, 80, 163, 185).

*Chiococca racemosa* L. Gregory Town, Eleuthera (363).

\**Galium hispidulum* Mich. In pine-barrens, Which Point, Abaco (563).

*Ernodea cokeri* Britton (sp. nov. f.). Stems very slender, trailing, finely pubescent, 3 cm. long or longer, much branched. Leaves narrowly linear, 2-3 cm. long, 1-1.5 mm. wide, rough-pubescent, very acute, 1-nerved, narrowed at the base into very short petioles; stipules about 2 mm. long; fruit somewhat obovate, sessile, about 4 mm. long, crowned with the 5 subulate calyx-lobes, which are 6 or 7 mm. in length. Growing under *Pteridium caudatum* (E.) Kuhn in pine-barrens, Which Point, Abaco (564). W. C. Coker, July 20, 1903.

*Ernodea littoralis* L. Killarney pine-barrens, New Providence; near beach, Green Cay (63, 244). Common on the shores of all the islands. The Green Cay plants had white flowers.

*Rachicallis maritima* (Jacq.) Schum. On rocks along shore, West road, New Providence (19); common in like situations on all the islands visited.

*Psychotria undata* Jacq. Mt. Vernon, New Providence; Eleuthera, opposite Spanish Wells; in a banana hole, Tarpum Bay, Eleuthera; Clarence Harbor, Long Island (28, 330, 412, 507).

*Strumpfia maritima* Jacq. Killarney pine-barrens, New Providence (59); common near the shores of all the islands visited.

*Hamelia patens* Jacq. Bluebeard's Tower, Nassau (127).

*Scolosanthus bahamensis* Britton. Low coppice, East road, Nassau (138).

*Erihalis fruticosa* L. (Black-torch). Low coppice, New Providence; on sandy beach, Watlings Island (43, 73, 161, 192, 463); common on all the islands visited. The Watlings Island specimen is a peculiar beach form with thick, round leaves and procumbent, trailing branches.

*Catesbea fasciculata* Northrop. Near the beach, Green Cay (247).

*Catesbea spinosa* L. (Prickly Apple). Side of hill, Gregory Town, Eleuthera (367); abundant on Long Island.

*Guttarda scabra* Lam. Low coppice, Eleuthera, opposite Spanish Wells (318); not uncommon in pine-barrens on New Providence.

*Guttarda elliptica* Sw. Arthurs Town, Cat Island; Clarence Harbor, Long Island (425, 515).

*Randia aculeata* L. Pine-barrens, Soldiers road, Nassau (56).

*Morinda roioc* L. Gregory Town, Eleuthera (379). Which Point, Abaco.

*Exostemma caribaeum* (Jacq.) R. & S. (Prince-wood). Watlings Island (465). New Providence.

*Genipa clusiaefolia* (Jacq.) Griseb. (Seven-year-apple). New Providence; Rum Cay; Green Cay; Current Settlement, Eleuthera; Watlings Island; Long Island; Abaco.

#### CUCURBITACEÆ.

*Anguria keithii* Northrop. Mangrove Cay, Andros (204, 218).

#### GOODENIACEÆ.

*Scavola plumieri* (L.) Vahl. A common beach plant on all the islands visited.

#### COMPOSITÆ.

*Aster tenuifolius* L. Edge of a brackish pond, Nassau (3b); Abaco.

*Borrachia* sp. Edge of a brackish pond, Nassau (14).

*Borrachia argentea* DC. Common on shores of all the islands visited.

*Borrachia glabra* Small. Common with above on all the islands visited.

*Iva cheiranthifolia* Kunth. Blue Hills road, New Providence; Green Cay (12, 239).

*Iva imbricata* Walt. On sandy shores, Green Cay; Current Town, Eleuthera; Watlings Island; Governors Harbor, Eleuthera; Rum Cay; New Providence.

*Baccharis dioica* Vahl. Killarney barrens, New Providence (183); along shore, and in moist places, Mangrove Cay, Andros; Gregory Town and Powells Point, Eleuthera; Cat Island; Rum Cay; Watlings Island.

\**Baccharis angustifolia* Michx. (Broom-bush). Edge of Mangrove Swamp, West road, Nassau (194).

\**Leptilon canadense* (L.) Britton. Governors Harbor, Eleuthera; Rum Cay (381, 455).

*Ageratum muticum* Griseb. Arthurs Town, Cat Island (431).

*Isocarpha oppositifolia* (L.) R. Br. Clarence Harbor, Long Island (492).

*Melanthera deltoidea* Michx. Clarence Harbor, Long Island (500).

*Eupatorium repandum* Willd. Water Cay, Clarence Harbor (526); growing with *Salmea*.

*Eupatorium* sp. Which Point, Abaco (560).

*Bidens leucantha* Willd. Nassau (22); New Providence; Mangrove Cay, Andros; Abaco.

*Salmea petroboides* Griseb. Beach near Nassau (25); common on shores of all the islands visited.

*Stemmodontia trilobata* (L.) Cass. West road, Nassau (26).

*Vernonia bahamensis* Griseb. Pine-barrens, New Providence (53); Abaco.

*Eupatorium ageratifolium* DC. West road, Nassau (100).

*Tridax procumbens* L. Beach near Nassau (104).

*Parthenium hysterophorus* L. West road, Nassau (107).

*Melanthera nivea* (L.) Small. Fort Montague, Nassau; Little Mangrove Cay, Andros (134, 198).

*Emilia sonchifolia* (L.) DC. Bluebeard's tower, Nassau (135).

*Anastraphia northropiana* Greenm. (Brass-wood). East road, Nassau (151).

*Willughbeia heterophylla* Small. Damp pine-barrens, New Providence (164, 545); Abaco. Listed by Northrop as *W. scandens*, but the Bahama plant has now been given specific rank by Small. It is identical with the south Florida form.

*Pluchea purpurascens* Sw. Marshy places, West road, Nassau (173).

*Pluchea fœtida* (L.) B. S. P. West road, Nassau (174, 356).

*Pluchea odorata* (L.) Cass. (Sour-bush). West road, Nassau (27); Mangrove Cay; Watlings Island; Long Island.

*Ambrosia artemisiæfolia* L. Grants Town, Nassau (291).

*Ambrosia hispida* Pursh. Nassau (34); common on sandy shores on all the islands visited.

The plants that are given in the preceding lists may be summarized as follows:

Myxomycetes .....	11
Fungi .....	22
Lichens .....	40
Algae <sup>"</sup> .....	59
Liverworts .....	8
Mosses .....	3
<hr/>	
Total number of lower plants.....	143
Ferns .....	14
Flowering plants .....	423
<hr/>	
Total number of plants listed.....	580

Of these there are—

Unidentified species of flowering plants.....	10
Unidentified species of lower plants.....	6
Plants identified but not collected.....	37

Three new species are here first described; they are *Pithecolobium mucronatum* Britton, *Malvaviscus cokeri* Britton, and *Ernodea cokeri* Britton. In addition to these, two new species from our collection have already been described. These are *Neomeris cokeri* Howe, an alga, and *Torrubia cokeri* Britton, a flowering plant. Three other new species first collected by us, but pub-

<sup>"</sup> This does not include five species of Algae collected in the Atlantic Ocean and therefore not properly listed among the Bahama plants.

lished from type specimens collected later by Dr. Britton, Dr. J. K. Small and Dr. Millspaugh, are *Savia bahamensis* Britton, *Scutellaria longiflora* Small, and *Euphorbia cayensis* Millsp.

Of identified species all of the Myxomycetes, 15 of the Fungi, 38 of the Lichens, all of the Liverworts, 1 of the Mosses and most of the Algæ had not before been collected from the Bahamas.

Specimens of wood, now at the University of North Carolina, were collected from the following 40 trees:

From Clarence Harbor, Long Island:

*Tetrazygia bicolor* (Mill.) Cogn.  
*Cæsalpinia vesicaria* L.  
*Tecoma bahamensis* Northrop.  
*Fagara flava* (Vahl.) Kr. & Urb.  
*Reynosia septentrionalis* Urban.  
*Erythroxylon obovatum* MacF.  
*Erythroxylon brevipes* DC.  
*Lysiolum bahamensis* Benth.  
*Krugiodendron ferreum* (Vahl.) Urban.  
*Guaiacum sanctum* L.  
*Amyris elemifera* L.  
*Gymnanthes lucida* Sw.  
*Rapanea guyanensis* Aubl.  
*Maytenus buxifolia* (Rich.) Griseb.  
*Hypelate trifoliata* Sw.  
*Exostemma caribæum* (Jacq.) R. & S.  
*Torrubia longifolia* (Heimerl) Britton.  
*Bursera simaruba* (L.) Sarg.  
*Coccolobis diversifolia* Jacq.  
*Coccolobis urifera* (L.) Jacq.  
*Bourreria haranensis* (L.) Miers.  
*Pithecolobium keyense* Britton.  
*Eugenia confusa* DC.  
*Fagara fagara* (L.) Small.  
*Colubrina colubrina* (L.) Millsp.  
*Colubrina reclinata* (L'Her.) Brog.  
*Mimusops sieberi* A. DC.  
*Conocarpus erecta sericea* Fors.

## From New Providence:

*Ilex krugiana* Loes.  
*Ilex repanda* Griseb.  
*Swietenia mahogani* L.  
*Pera humeliaefolia* Griseb.  
*Icacoria paniculata* (Nutt.) Sudw.  
*Exothea paniculata* (Juss.) Radlk.  
*Simaruba glauca* Kth.  
*Lysiloma paucifoliola* (DC.) A. S. Hitch.  
*Metopium metopium* (L.) Small.

## From Abaco:

*Juniperus barbadensis* L.  
*Sideroxylon masticodendron* Jacq.

## From Watlings Island:

*Casuarina equisetifolia* Forst.

## EXPLANATION OF PLATES.

## PLATE I.

*Bougainvillea* in a Nassau Garden.

## PLATE XXXIII.

FIG. 1. A lawn in Nassau, with Tamarind tree (*Tamarindus indica*) in center.  
 FIG. 2. Pawpaw tree (*Carica papaya*) in fruit. In a door-yard, Nassau.

## PLATE XXXIV.

FIG. 1. A beach scene in Nassau, showing in center an "Almond" tree (*Terminalia catappa*) with upright shoots from a prostrate trunk.  
 FIG. 2. Fig tree (*Ficus sapotifolia*) supported by large aerial roots: "Thomson's Folly," Nassau.

## PLATE XXXV.

FIG. 1. A Nassau scene, showing the Royal Palm (*Roystonea regia*) in center.  
 FIG. 2. A Pine tree (*Pinus bahamensis*), about 55 feet high, surrounded by Silver Palm (*Thrinax bahamensis*): Blue Hill road, New Providence.

## PLATE XXXVI.

FIG. 1. Lignum Vitæ trees (*Guaiacum sanctum*) on a hill near Clarence Harbor, Long Island; showing the effect of prevailing winds.  
 FIG. 2. Sand-box tree (*Hura crepitans*) in a Nassau street.

## PLATE XXXVII.

FIG. 1. Scene in a fresh-water marsh on the north side of New Providence to the west of Nassau, with Thatch Palm (*Inodes palmetto*) in center: Wax Myrtle (*Myrica cerifera*), Custard Apple (*Anona palustris*) and Cocoa Plum (*Chrysobalanus icaco*) in the undergrowth: (*Salmea petrobioides*) in patches on the hillside in foreground.

FIG. 2. Forest scene on Which Point, Abaco, showing Pines with "May-pole" fern (*Pteridium caudatum*) beneath.

## PLATE XXXVIII.

FIG. 1. A typical high coppice at junction of Blue Hill and Soldiers roads, New Providence.

FIG. 2. Mixed growth of Pines, Silver Palms (*Thrinax bahamensis*) and deciduous trees on Blue Hill road, New Providence.

## PLATE XXXIX.

FIG. 1. Logwood tree (*Hæmatoxylon campechianum*) in a clearing at Current Settlement, Eleuthera.

FIG. 2. Fig trees in a clearing on Mangrove Cay, Andros. *Ficus jacquinifolia* in center, *Ficus sapotifolia* to left. Small aerial roots are running down the stems.

## PLATE XL.

FIG. 1. "Bamboo tree" (*Agave rigidula*) on a barren hillside: east shore, Gregory Town, Eleuthera. The flower stalk is about 30 feet high and 13 inches in diameter.

FIG. 2. An epiphytic plant (*Tillandsia recurvata*) on (*Strumpflia maritima*) in an open brackish flat near Nassau.

## PLATE XLI.

FIG. 1. Pigeon Plum tree (*Coccolobis laurifolia*); Clarence Harbor, Long Island.

FIG. 2. Mangrove trees (*Rhizophora mangle*), about 35 feet high, on a small cay in the lake, Watlings Island.

## PLATE XLII.

FIG. 1. Rock coast on the north side of New Providence, west of Nassau, showing, in almost pure association, *Rhacicalis maritima* to right and *Suriana maritima* to left.

FIG. 2. Sandy shore on north side of New Providence, west of Nassau: *Tournefortia gnaphalodes* and *Uniola paniculata* in foreground; behind these a fringe of Sea grape (*Coccolobis uvifera*); with Cocoanut Palm (*Cocos nucifera*) in background.

## PLATE XLIII.

FIG. 1. Sandy and rocky shore on the west side of Watlings Island: Thatch Palms in background; Cocoa Plum (*Chrysobalanus icaco*) next; then an open growth of *Ambrosia hispida* and *Distichlis maritima*; and finally *Suriana maritima* on the rocky ledge at high-tide mark.

FIG. 2. Scene on a rocky beach, west side of Watlings Island; showing Thatch Palms (*Inodes palmetto*) in background and "Spanish Cedar" (*Casuarina equisetifolia*) to left. In foreground are natives washing clothes.

## PLATE XLIV.

FIG. 1. *Tournefortia gnaphalodes* on a sandy beach at Mangrove Cay, Andros. Many of the branches have recurved and taken root at their tips, forming new plants.

FIG. 2. Outer limit of vegetation on a rocky coast, Water Cay, Long Island. In foreground is *Hymenocallis arenicola* with Silver Palm (*Thrinax bahamensis*) and Strong-back (*Bourreria havanensis*) behind. Between the palms the Strong-back has been worn away by the wind.

## PLATE XLV.

FIG. 1. *Hymenocallis arenicola* in flower with Thatch Palms (*Inodes palmetto*) in background; western shore of Eleuthera, opposite Current Town. Among the *Hymenocallis* is scattered *Corchorus hirsutus*.

FIG. 2. Rocky shore on eastern coast of Long Island opposite Clarence Harbor. *Rhacicallis maritima* on rocks in foreground. With it is mixed a little *Iva imbricata*, *Salmea petrobiooides*, *Strumpfia maritima*, *Ernodea littoralis*, *Suriana maritima* and *Uniola fasciculata*. On the slope and top of the ridge behind this association is a low rock coppice of Silver Palms (*Thrinax bahamensis*), *Jacquinia keyensis*, *Genipa clusiæfolia*, etc.

## PLATE XLVI.

FIG. 1. *Avicennia nitida* on the border of a salt pan on Rum Cay: showing the upright aerial roots as tall as the leafy plant.

FIG. 2. A meadow of *Sporobolus virginicus* on Water Cay, Long Island: *Avicennia nitida* (to right) and *Conocarpus erecta* (to left) in background. The small scrubs to left in foreground are *Borrachia arborescens*.

## PLATE XLVII.

FIG. 1. Sandy beach on south side of New Providence: *Avicennia nitida* in shallow sea water, and the typical beach plants, *Tournefortia gnaphalodes*, *Scævola plumieri*, *Strumpfia maritima*, and the grasses, *Paspalum vaginatum* and *Sporobolus virginicus*. In background is a fringe of Silver Palms (*Thrinax bahamensis*).

FIG. 2. Sandy beach on Green Cay looking landward. Grasses mixed with *Sesuvium portulacastrum* in foreground with a low coppice behind.

GEOGRAPHICAL SOCIETY OF BALTIMORE.

THE BAHAMA ISLANDS. PLATE I.



BOUGAINVILLEA IN A NASSAU GARDEN.



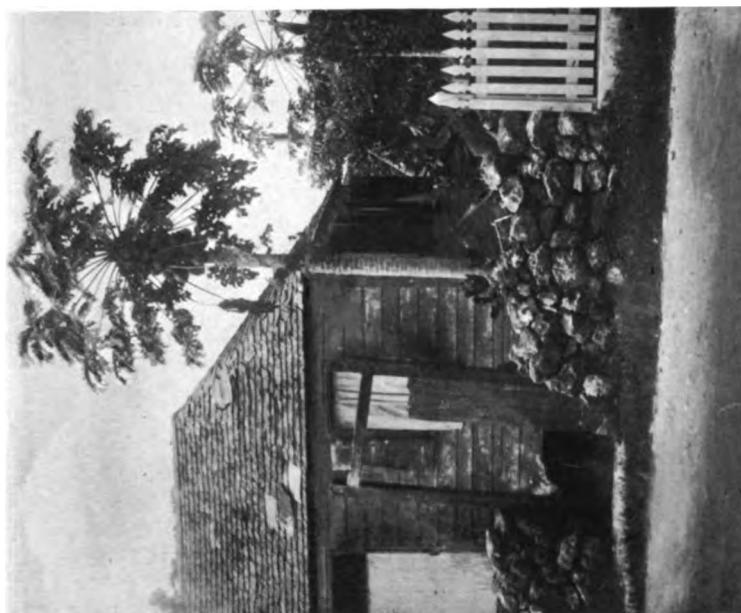


FIG. 2.—PAWPAW TREE (*CARICA PAPAYA*) IN FRUIT, NASSAU  
VIEWS ILLUSTRATING VEGETATION



FIG. 1.—TAMARIND TREE (*TAMARINDUS INDICA*), NASSAU





FIG. 1.—“ALMOND” TREE (*TERMINALIA CATAPPA*), NASSAU



FIG. 2.—FIG TREE (*FICUS SAPOTIFOLIA*), NASSAU

VIEWS ILLUSTRATING VEGETATION





FIG. 2.—PINE TREE (*PINUS BAHAMENSIS*), SURROUNDED BY SILVER PALM (*THRINAX BAHAMENSIS*), NEW PROVIDENCE  
VIEWS ILLUSTRATING VEGETATION

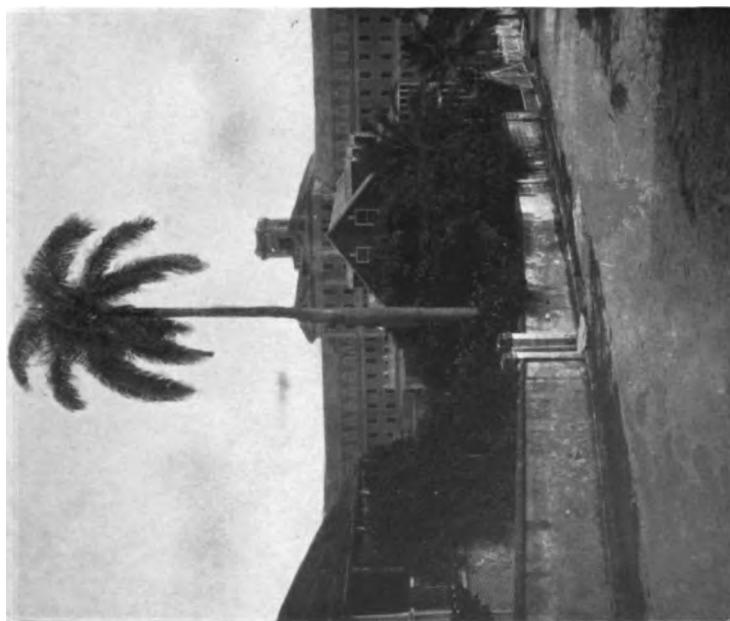


FIG. 1.—ROYAL PALM (*ROYSTONIA REGIA*) IN A GARDEN AT NASSAU





FIG. 1.—LIGNUM VITÆ TREES (GUAIACUM SANCTUM), SHOWING THE EFFECT OF PREVAILING WINDS, CLARENCE HARBOR



FIG. 2.—SAND-BOX TREE (HURA CREPITANS), NASSAU

VIEWS ILLUSTRATING VEGETATION





FIG. 1.—VEGETATION OF A FRESH WATER MARSH WITH THATCH PALM (*INODES PALMETTO*)  
IN CENTER, NEW PROVIDENCE



FIG. 2.—FOREST SHOWING PINES WITH "MAY-POLE" FERN (*PTERIDIUM CAUDATUM*)  
BENEATH, ABACO

VIEWS ILLUSTRATING VEGETATION



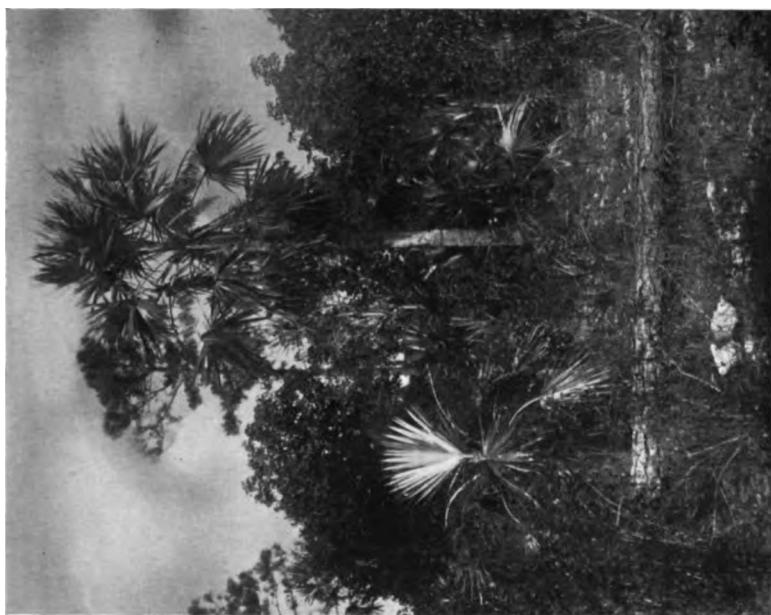


FIG. 2.—MIXED GROWTH OF PINES, SILVER PALMS (*THrinax BAHAMENSIS*) AND DECIDUOUS TREES, NEW PROVIDENCE

VIEWS ILLUSTRATING VEGETATION



FIG. 1.—TYPICAL HIGH COPPISE IN THE INTERIOR OF NEW PROVIDENCE





FIG. 2.—FIG TREE (*FICUS JACQUINIFOLIA*) IN CENTER, MANGROVE  
CAY, ANDROS

VIEWS ILLUSTRATING VEGETATION



FIG. 1.—LOOWOOD TREE (*HAEMATOXYLON CAMPECIUM*), CUR-  
RENT SETTLEMENT, ELEUTHERA



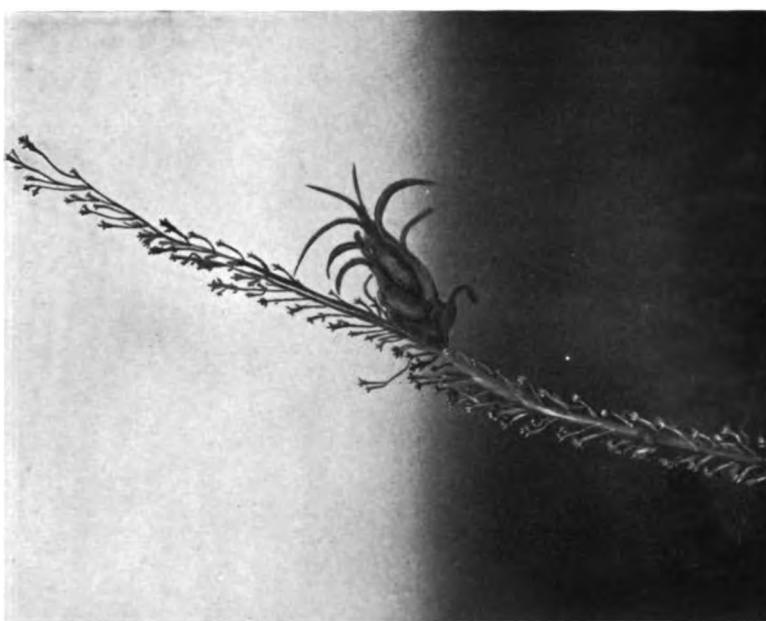


FIG. 2.—EPIPHYtic PLANT (*TILLANDSIA RECURVATA*) ON STRUMA-  
FIA MARITIMA IN AN OPEN BRACKISH FLAT, NASSAU

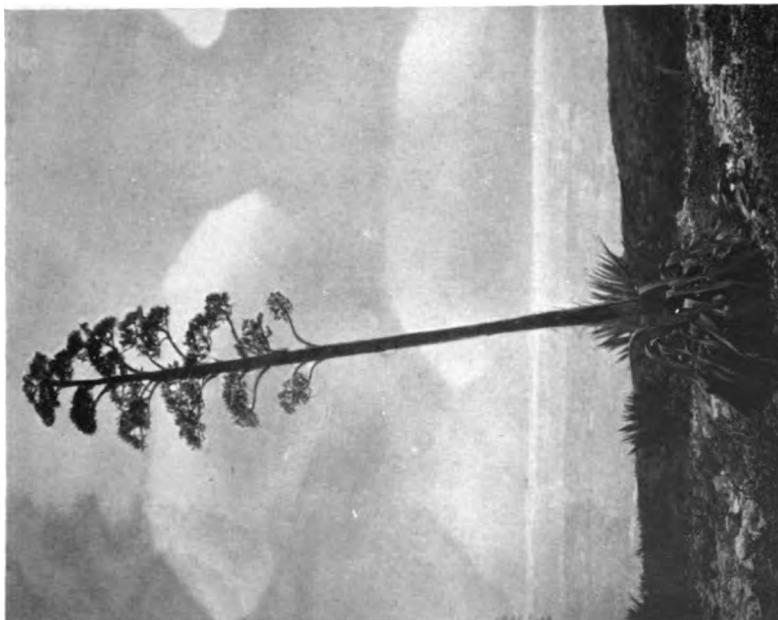


FIG. 1.—"BAMBOO TREE" (*AGAVE RIGIDA*), GREGORY TOWN,  
ELEUTHERA.

VIEWS ILLUSTRATING VEGETATION



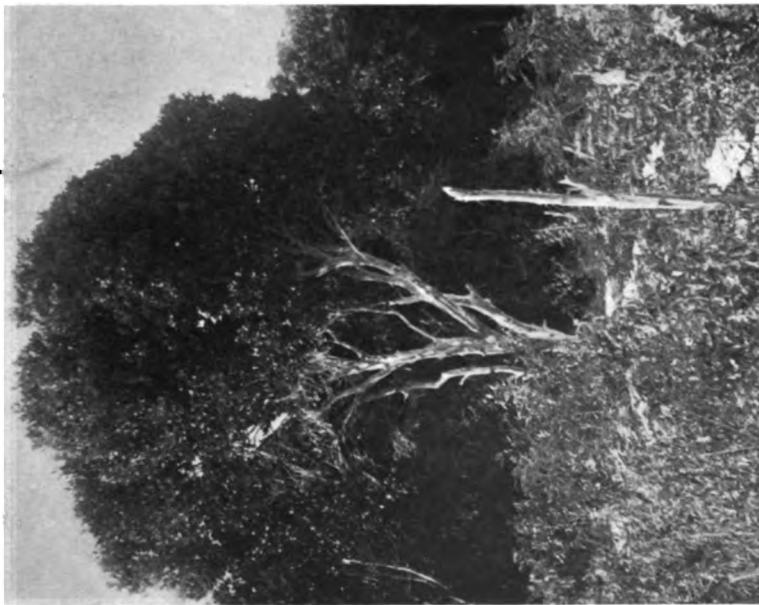


FIG. 1.—PIGEON PLUM TREE (*COCCOLOBIS LAURIFOLIA*), CLARENCE HARBOR, LONG ISLAND

VIEWS ILLUSTRATING VEGETATION



FIG. 2.—MANGROVE TREES (*RHIZOPHORA MANGROVE*), GREAT LAKE, WATLINGS ISLAND





FIG. 1.—VEGETATION ON ROCKY COAST, NEW PROVIDENCE



FIG. 2.—VEGETATION ON SANDY SHORE, NEW PROVIDENCE

VIEWS ILLUSTRATING VEGETATION





FIG. 1.—VEGETATION ON SANDY AND ROCKY SHORE, WATLINGS ISLAND



FIG. 2.—VEGETATION ON ROCKY BEACH, WATLINGS ISLAND

VIEWS ILLUSTRATING VEGETATION



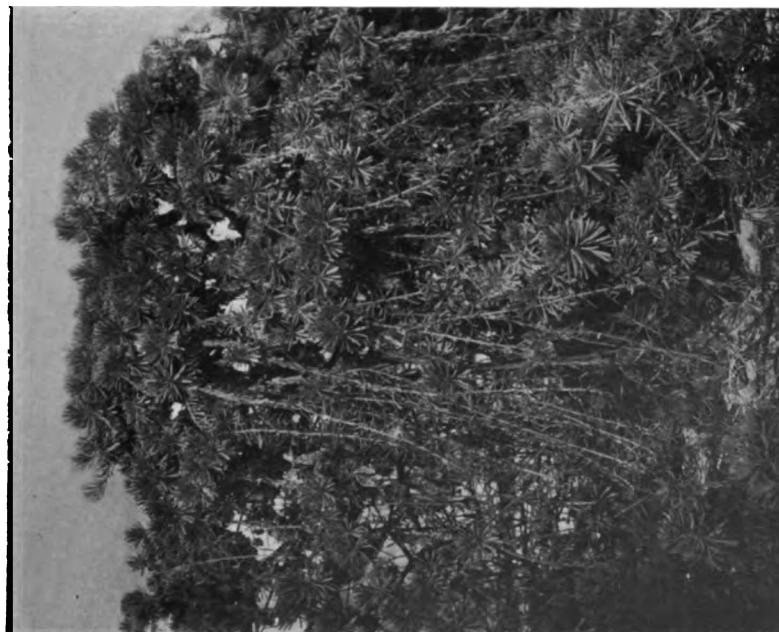


FIG. 1.—VEGETATION ON SANDY BEACH, NEW PROVIDENCE

VIEWS ILLUSTRATING VEGETATION



FIG. 2.—VEGETATION ON SANDY BEACH, GREEN CAY





FIG. 1.—WHITE LILIES (*HYMENOCALLIS ARENICOLA*) IN FLOWER, WEST SHORE,  
ELEUTHERA



FIG. 2.—VEGETATION ON ROCKY SHORE, NEAR CLARENCE HARBOR, LONG ISLAND

VIEWS ILLUSTRATING VEGETATION





FIG. 1.—VEGETATION ON BORDER OF SALT PAN, RUM CAY



FIG. 2.—VEGETATION IN MEADOW, WATER CAY, LONG ISLAND

VIEWS ILLUSTRATING VEGETATION





FIG. 1.—VEGETATION ON SANDY BEACH, NEW PROVIDENCE



FIG. 2.—VEGETATION ON SANDY BEACH, GREEN CAY

VIEWS ILLUSTRATING VEGETATION









